



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**
REGION III
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February 12, 2018

Mr. Charles Arnone
Entergy Nuclear Operations, Inc.
Palisades Nuclear Plant
27780 Blue Star Memorial Highway
Covert, MI 49043-9530

**SUBJECT: PALISADES NUCLEAR PLANT—NRC INTEGRATED INSPECTION REPORT
05000255/2017004; AND EMERGENCY PREPAREDNESS ANNUAL
INSPECTION REPORT 05000255/2017501**

Dear Mr. Arnone:

On December 31, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Palisades Nuclear Plant. On January 16, 2018, the NRC inspectors discussed the results of this inspection with yourself and other members of your staff. The results of this inspection are documented in the enclosed report. The NRC also completed its annual inspection of the Emergency Preparedness Program. This inspection began on January 1, 2017, and the issuance of this letter closes Inspection Report 05000255/2017501.

Based on the results of this inspection, the NRC has identified one issue that was evaluated under the risk significance determination process as having very low safety significance (Green). The NRC has also determined that a violation is associated with this issue. Because this issue was entered into the corrective action program and actions were initiated to address the issue, the violation is being treated as a Non-Cited Violation (NCV) consistent with Section 2.3.2 of the NRC Enforcement Policy. The NCV is described in the subject inspection report.

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; and the NRC Resident Inspector at the Palisades Nuclear Plant.

If you disagree with the cross-cutting aspect assignment in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region III; and the NRC Resident Inspector at the Palisades Nuclear Plant.

This letter, its enclosure, and your response (if any) will be made available for public inspection and copying at <http://www.nrc.gov/reading-rm/adams.html> and at the NRC Public Document Room in accordance with 10 CFR 2.390, "Public Inspections, Exemptions, Requests for Withholding."

Sincerely,

/RA/

Eric Duncan, Chief
Branch 3
Division of Reactor Projects

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

Enclosure:
IR 05000255/2017004; 05000255/2017501

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Letter to Charles Arnone from Eric Duncan dated February 12, 2018

SUBJECT: PALISADES NUCLEAR PLANT—NRC INTEGRATED INSPECTION REPORT
05000255/2017004; AND EMERGENCY PREPAREDNESS ANNUAL
INSPECTION REPORT 05000255/2017501

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report Nos: 05000255/2017004; 05000255/2017501

Licensee: Entergy Nuclear Operations, Inc.

Facility: Palisades Nuclear Plant

Location: Covert, MI

Dates: October 1 through December 31, 2017

Inspectors: A. Nguyen, Senior Resident Inspector
J. Boettcher, Resident Inspector
B. Bartlett, Project Engineer
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Approved by: E. Duncan, Chief
Branch 3
Division of Reactor Projects

Enclosure

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SUMMARY

Inspection Report 05000255/2017004, 05000255/2017501; 10/01/2017 – 12/31/2017;
Palisades Nuclear Plant; Surveillance Testing.

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. One Green finding was identified by the inspectors. The finding involved a Non-Cited Violation (NCV) of the U.S. Nuclear Regulatory Commission (NRC) requirements. The significance of inspection findings is 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 April 29, 2015. Cross-cutting aspects are determined using IMC 0310, "Aspects Within the Cross-Cutting Areas," dated December 4, 2014. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy, dated November 1, 2016. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 6.

Cornerstone: Barrier Integrity

- Green. A finding of very low safety significance and an associated NCV of Title 10 of the *Code of Federal Regulations* (CFR) Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was self-revealed when the licensee failed to follow step 5.4.4.b of Technical Specification surveillance procedure RT-85D-A, "Control Room Emergency Ventilation Filtration Testing – A Train." Specifically, the licensee failed to properly connect maintenance and test equipment (M&TE) across flow transmitter test taps which caused V-26A, the air filter unit (AFU) VF-26A fan, to stop 17 seconds after operators started the fan from the control room. The licensee entered this issue into their Corrective Action Program (CAP) as condition report (CR) CR-PLP-2017-05234. Corrective actions included coaching the vendor on ensuring M&TE is properly connected to plant equipment and ensuring suitable field oversight of the vendor during re-performance of the surveillance.

The issue was determined to be more than minor in accordance with IMC 0612, Appendix B, "Issue Screening," because it was associated with the Barrier Integrity cornerstone attribute of Human Performance and adversely affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. The finding screened as having very low safety significance (Green) in accordance with IMC 0609, Appendix A, "The Significance Determination Process for Findings At-Power," Exhibit 3, because the inspectors answered "No" to all screening questions. The finding had a cross-cutting aspect in the area of Human Performance, in the Field Presence aspect, for the failure to ensure supervisory and management oversight of work activities, including contractors and supplemental personnel (H.2). (Section 1R22)

REPORT DETAILS

Summary of Plant Status

The plant began the inspection period operating at full power. The plant operated at or near full power for the entire inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Readiness for Impending Adverse Weather Condition—Gale Warning and Significant Rain

a. Inspection Scope

On October 23 and 24, 2017, the inspectors reviewed the licensee's overall preparations and protection from gale force winds and significant rainfall forecast in the vicinity of the facility. On October 23 and 24, 2017, the inspectors walked down the emergency diesel generator and service water systems, in addition to the licensee's emergency alternating current (AC) power systems, because their safety-related functions could be affected or required as a result of high winds or tornado-generated missiles or the loss of offsite power. The inspectors compared the licensee staff's preparations to the site's procedures and determined whether the staff's actions were adequate. During the inspection, the inspectors focused on plant-specific design features and the licensee's procedures used to respond to specified adverse weather conditions. The inspectors also toured the plant grounds to look for any loose debris that could become missiles during a tornado. The inspectors evaluated operator staffing and accessibility of controls and indications for those systems required to control the plant. Additionally, the inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant-specific procedures. The inspectors also reviewed a sample of Corrective Action Program (CAP) items to verify that the licensee identified adverse weather issues at an appropriate threshold and dispositioned them through the CAP in accordance with station corrective action procedures. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one readiness for impending adverse weather condition sample as defined in Inspection Procedure (IP) 71111.01–05.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

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

- Left Train Auxiliary Feedwater (AFW) system;
- 1–2 Diesel Generator (DG); and
- Warm Water Siphon system for frazil ice mitigation.

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, the UFSAR, Technical Specification (TS) requirements, outstanding work orders (WOs), 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 November 28 and 29, 2017, the inspectors performed a complete system alignment inspection of the service water system to verify the functional capability of the system. This system was selected because it was considered both safety-significant and risk-significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment lineups; electrical power availability; system pressure and temperature indications, as appropriate; component labeling; component lubrication; component and equipment cooling; hangers and supports; operability of support systems; and to ensure that ancillary equipment or debris did not interfere with equipment operation. A review of a sample of past and outstanding WOs 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 the availability, accessibility, and condition of firefighting equipment in the following risk-significant plant areas:

- Fire Area 28: West Engineered Safeguards Room, Elevation 570’;
- Fire Areas 29, 30, and 31: Mechanical Equipment Rooms, Elevations 629’ and 639’;
- Fire Area 24: AFW Pump Room, Elevation 571’; and
- Fire Area 13A: Auxiliary Building Main Corridor – North and South, Elevation 590’.

The inspectors reviewed areas to assess if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, maintained passive fire protection features in good material condition, and implemented adequate compensatory measures for out-of-service, degraded or inoperable fire protection equipment, systems, or features in accordance with the licensee’s fire plan.

The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant’s Individual Plant Examination of External Events with later additional insights, their potential to impact equipment which could initiate or mitigate a plant transient, or their impact on the plant’s ability to respond to a security event.

Using the documents listed in the Attachment 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 analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee’s CAP. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

1R11 Licensed Operator Regualification Program (71111.11)

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

a. Inspection Scope

On October 6, 2017, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator regualification training. The inspectors verified that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and that 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 regualification program simulator sample as defined in IP 71111.11-05.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

.1 Routine Quarterly Evaluations

a. Inspection Scope

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

- Engineered Safety Features System – Normal Shutdown and Design Basis Accident Sequencer System (ESS-SEQ); and
- Critical Service Water System.

The inspectors reviewed events including those in which 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 Part 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.

The review of the ESS-SEQ system also included the review of Unresolved Item (URI) 05000255/2017003-01, "Left Train Emergency Diesel Generator Load Sequencer Failure." This URI is being closed as documented in Section 4OA5 of this report.

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

.1 Maintenance Risk Assessments and Emergent Work Control

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:

- Elevated risk for planned maintenance on P-7B, 'B' Service Water Pump concurrent with entry into the Abnormal Operating Procedure (AOP) for high winds;
- Emergent troubleshooting on P-55B, 'B' Charging Pump; and
- Emergent troubleshooting on V-26A, Left Train Control Room HVAC Air Filter Unit (AFU) Fan concurrent with entry into the AOP for gale force winds.

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.

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)

.1 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following issues:

- Operability evaluation for the installed, non-conforming Reactor Protection System Control Rod Clutch Breakers;
- Operability evaluation of the Shield Cooling System with significant cooling coil leakage; and
- Operability evaluation of the degrading condition of RIA–1805, Containment Radiation Monitor.

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 TSs 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 sample 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)

.1 Plant Modifications

a. Inspection Scope

The inspectors reviewed the following modification:

- Shield Cooling System alternate alignment and fill path.

The inspectors compared the configuration changes and associated 10 CFR 50.59 safety evaluation screening with the design basis, the UFSAR, and the TSs, as applicable, to verify that the modification did not adversely affect the operability or availability of the affected system. The inspectors, as applicable, observed ongoing and completed work activities to ensure that the modification was installed as directed and consistent with the design control documents; the modification operated as expected; post-modification testing adequately demonstrated continued system operability, availability, and reliability; and that operation of the modification 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 are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

.1 Post-Maintenance Testing

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:

- Test start of 1–1 DG after replacement of PCV–1479;
- Stroke time testing of CV–3025, Shutdown Cooling Heat Exchanger Outlet Valve, following operator diaphragm replacement;
- Surveillance testing of P–7B, ‘B’ SW Pump after packing shaft replacement;
- Diagnostic testing of CV–0608 after level controller replacement; and
- Surveillance testing of P–52A, ‘A’ Component Cooling Water (CCW) Pump after maintenance.

These activities were selected based upon the SSC’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)

.1 Surveillance Testing

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:

- QO–16B, 'B' Containment Spray Pump inservice test (routine);
- QI–39, AFW Actuation System logic testing (routine);
- RI–95D, AFW Flow Transmitter, FT–0737, instrument loop calibration (routine);
- RT–85D–A, 'A' Train Control Room Emergency Ventilation Filtration testing (routine); and
- QO–14A, 'A' Service Water Pump inservice test (inservice test).

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

- did preconditioning occur;
- were the effects of the testing adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- were acceptance criteria clearly stated, demonstrate operational readiness, and consistent with the system design basis;
- was plant equipment calibration correct, accurate, and properly documented;
- were as-left setpoints within required ranges; and was the calibration frequency in accordance with TSs, the UFSAR, procedures, and applicable commitments;

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

Documents reviewed are listed in the Attachment to this report.

This inspection constituted four routine surveillance testing samples and one in-service test sample as defined in IP 71111.22, Sections–02 and–05.

b. Findings

Improperly Connected Maintenance and Test Equipment Leads to Unexpected Air Filter Unit Fan Trip

Introduction: A finding of very low safety significance (Green) and an associated non-cited violation (NCV) of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” was self-revealed when the licensee failed to follow step 5.4.4.b of TS surveillance procedure RT–85D–A, “Control Room Emergency Ventilation Filtration Testing – A Train.” Specifically, the licensee failed to properly connect maintenance and test equipment (M&TE) across the flow transmitter test taps which caused V–26A, the air filter unit (AFU) VF–26A fan, to stop 17 seconds after operators started the fan from the control room.

Description: On November 14, 2017, the licensee performed TS surveillance procedure RT–85D–A, “Control Room Emergency Ventilation Filtration Testing – A Train,” for required system testing. During performance of step 5.4.5, the operators placed train A of the control room ventilation system in service in the emergency mode in accordance with the procedure. After 17 seconds of operation, V–26A, the AFU VF–26A fan,

stopped. The licensee declared V-26A inoperable and commenced troubleshooting to understand the cause of the fan failure. The troubleshooting identified the probable cause of the failure to be an improper connection of a temporary manometer across flow transmitter FT-1711 test taps. The licensee identified that the improper connection caused FIC-1711, the AFU fan discharge flow controller, to receive an invalid excessive flow measurement. The excessive flow measurement caused AFU modulating damper D-20 to attempt to decrease flow by closing. Ultimately, the damper fully closed, causing V-26A to stop, as designed. As part of their troubleshooting plan, the licensee was able to recreate these conditions with an identical result of the fan stopping after approximately 17 seconds.

Procedure RT-85D-A, step 5.4.4.b, requires that a vendor technician connect a temporary [M&TE] manometer across the flow transmitter FT-1711 test taps to obtain a differential pressure and calculate a total air flow rate through the system. The licensee identified that during this step in the procedure the vendor technician did not have licensee oversight in the immediate area of the equipment. It was also identified that because the work was classified as low risk continuous field oversight was not required by the supplemental oversight plan developed prior to the commencement of testing. As a result of this issue, the licensee coached the vendor on ensuring M&TE is properly connected to plant equipment and ensured suitable field oversight of the vendor during successful re-performance of the surveillance on November 17, 2017.

Analysis: The inspectors determined that the failure to properly connect a temporary M&TE manometer across the flow transmitter FT-1711 test taps was contrary to RT-85D-A, step 5.4.4.b, and was a performance deficiency.

The performance deficiency was determined to be more than minor in accordance with Inspection Manual Chapter (IMC) 0612, Appendix B, "Issue Screening," dated September 7, 2012, because it was associated with the Barrier Integrity cornerstone attribute of Human Performance and adversely affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, the failure resulted in a delay of the performance of the TS surveillance procedure and in additional unavailability and inoperability of the A train of the control room ventilation filtration system.

The inspectors determined the finding could be evaluated using the Significance Determination Process (SDP) in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Initial Characterization of Findings," because it affected the Barrier Integrity cornerstone. Specifically, the inspectors used IMC 0609, Appendix A, "SDP for Findings At-Power," Exhibit 3, "Barrier Integrity Screening Questions," to screen the finding. The finding screened as having very low safety significance (Green) because the inspectors answered "No" to all of the associated screening questions. This finding has a cross-cutting aspect of Field Presence, in the area of Human Performance, for the failure to ensure supervisory and management oversight of work activities, including contractors and supplemental personnel. Specifically, the licensee failed to provide adequate vendor oversight during the connection of temporary M&TE to a safety-related system which resulted in V-26A, the AFU VF-26A fan, stopping unexpectedly and subsequently being declared inoperable. (H.2)

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” requires, in part, that activities affecting quality be prescribed by documented procedures of a type appropriate to the circumstances and be accomplished in accordance with these procedures.

Procedure RT–85D–A, Revision 1, “Control Room Emergency Ventilation Filtration Testing – A Train,” was the implementing procedure for TS Surveillance Requirement 3.7.10.2, an activity affecting quality.

Technical Specification Surveillance Procedure RT–85D–A, Revision 1, step 5.4.4, stated, in part, to, “perform the following to provide measurement of filter train airflow using temporary [M&TE] manometer installed in parallel with FT–1711.”

Technical Specification Surveillance Procedure RT–85D–A, Revision 1, step 5.4.4.b, stated, in part, to “connect the temporary [M&TE] manometer across transmitter test taps and place the manometer in service.”

Contrary to the above, on November 14, 2017, the licensee failed to follow step 5.4.4.b of RT–85D–A. Specifically, the licensee incorrectly connected the temporary [M&TE] manometer to the test taps across flow transmitter FT–1711.

The licensee’s short-term corrective actions included coaching the vendor on ensuring M&TE is properly connected to plant equipment and ensuring suitable field oversight of the vendor during re-performance of the surveillance. This issue was entered into the licensee’s CAP as CR–PLP–2017–05234, During Performance of RT-85D-A, Control Room Emergency Ventilation Filtration Testing, V–26A Stopped after 17 Seconds, following Start in Emergency Mode. Because this violation was of very low safety significance and it was entered into the licensee’s CAP as CR–PLP–2017–05234, this violation is being treated as a NCV, consistent with Section 2.3.2.a of the NRC Enforcement Policy. **(NCV 05000255/2017004–01, Improperly Connected M&TE Leads to Unexpected AFU Fan Trip)**

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

a. Inspection Scope

The regional inspectors performed an in-office review of the latest revisions to the Emergency Plan, Emergency Action Levels (EALs), and EAL Bases document to determine if these changes decreased the effectiveness of the Emergency Plan. The inspectors also performed a review of the licensee’s 10 CFR 50.54(q) change process and Emergency Plan change documentation to ensure proper implementation for maintaining Emergency Plan integrity.

The NRC review was not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, this revision is subject to future inspection. The specific documents reviewed during this inspection are listed in the Attachment to this report.

This EAL and Emergency Plan Change inspection constituted one sample as defined in IP 71114.04.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on October 25, 2017, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the control room simulator, operations support center, and technical support center to determine whether the event classifications, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to determine whether the licensee staff was properly identifying weaknesses and entering them into the CAP. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the Attachment to this report.

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

b. Findings

No findings were identified.

2. RADIATION SAFETY

2RS2 Occupational As-Low-As-Reasonably-Achievable Planning and Controls (71124.02)

.1 Radiological Work Planning (02.02)

a. Inspection Scope

The inspectors selected a sample of work activities of the highest exposure significance or activities that involved work in high dose rate areas for review.

The inspectors reviewed the radiological work planning as-low-as-reasonably-achievable (ALARA) evaluations, initial and revised exposure estimates, and exposure mitigation requirements. The inspectors determined if the licensee had reasonably grouped the radiological work into work activities.

The inspectors assessed whether the licensee's planning identified appropriate dose reduction techniques; appropriately considered alternate reduction features; and defined reasonable dose goals. The inspectors evaluated whether the licensee's ALARA assessment had taken into account decreased worker efficiency from the use of respiratory protective devices and/or heat stress mitigation equipment. The inspectors determined if the licensee's work planning considered the use of remote technologies and dose reduction insights from industry and plant-specific operating experience. The

inspectors assessed whether these ALARA requirements were integrated into work procedure and/or radiation work permit documents.

The inspectors compared the results achieved with the intended dose established in the ALARA planning. The inspectors compared the person-hour estimates provided by work groups to the radiation protection group with the actual work activity time results, and evaluated the accuracy of these time estimates. The inspectors evaluated the reasons for any inconsistencies between intended and actual work activity doses.

The inspectors evaluated whether post-job reviews were conducted to identify lessons learned and were entered into the licensee's CAP.

These inspection activities constituted one complete sample as defined in IP 71124.02–05.

b. Findings

No findings were identified.

.2 Verification of Dose Estimates and Exposure Tracking Systems (02.03)

a. Inspection Scope

The inspectors assessed whether the assumptions and basis for the current annual collective exposure estimate were reasonably accurate. The inspectors assessed source term reduction effectiveness and reviewed applicable procedures for estimating exposures from specific work activities.

The inspectors reviewed the assumptions and bases in ALARA work planning documents for selected activities and verified that the licensee had established measures to track, trend, and if necessary to reduce, occupational doses for ongoing work activities.

The inspectors determined whether a dose threshold criteria was established to prompt additional reviews and/or additional ALARA planning and controls and evaluated the licensee's method of adjusting exposure estimates, or re-planning work, when unexpected changes in scope or emergent work were encountered. The inspectors determined if adjustments to exposure estimates were based on sound radiation protection and ALARA principles or if they are just adjusted to account for failures to control the work. The inspectors evaluated whether there was sufficient station management review and approval of adjustments to exposure estimates and whether the reasons for the adjustments were justifiable.

The inspectors reviewed selected occasions with inconsistent or incongruent results from the licensee's intended radiological outcomes to determine whether the cause was attributed to a failure to adequately plan work activities, or a failure to provide sufficient management oversight of in-plant work activities, or a failure to conduct the work activity without significant rework, or a failure to implement radiological controls as planned.

These inspection activities constituted one complete sample as defined in IP 71124.02–05.

b. Findings

No findings were identified.

.3 Problem-Identification and Resolution (02.06)

a. Inspection Scope

The inspectors reviewed self-assessments and/or audits performed of the ALARA program and determined if these reviews identified problems or areas for improvement.

The inspectors assessed whether problems associated with ALARA planning and controls were being identified by the licensee at an appropriate threshold and properly addressed for resolution.

These inspection activities constituted one complete sample as defined in IP 71124.02–05.

b. Findings

No findings were identified.

4. **OTHER ACTIVITIES**

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

4OA1 Performance Indicator Verification (71151)

.1 Mitigating Systems Performance Index—Emergency AC Power System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI)—Emergency AC [Alternating Current] Power System (MS06) performance indicator (PI) for the period from the fourth quarter 2016 through the third quarter 2017. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in Nuclear Energy Institute (NEI) 99–02, “Regulatory Assessment Performance Indicator Guideline,” Revision 7, dated August 31, 2013, were used. The inspectors reviewed the licensee’s operator narrative logs, MSPI derivation reports, condition reports, event reports, and NRC Integrated Inspection Reports (IRs) for the period of October 1, 2016 through September 30, 2017, 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, whether the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee’s condition report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI Emergency AC Power System sample as defined in IP 71151–05.

b. Findings

No findings were identified.

.2 Mitigating Systems Performance Index—Cooling Water Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI—Cooling Water Systems (MS10) PI for the period from the fourth quarter 2016 through the third quarter 2017. 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 7, dated August 31, 2013, were used. The inspectors reviewed the licensee's operator narrative logs, condition reports, MSPI derivation reports, event reports, and NRC IRs for the period of October 1, 2016 through September 30, 2017, 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, whether the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's condition report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI Cooling Water System sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.3 Reactor Coolant System Specific Activity

a. Inspection Scope

The inspectors sampled licensee submittals for the Reactor Coolant System Specific Activity PI for the period from the fourth quarter 2016 through the third quarter 2017. The inspectors used PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 31, 2013, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's reactor coolant system chemistry samples, technical specification requirements, condition reports, event reports and NRC IRs to validate the accuracy of the submittals. The inspectors also reviewed the licensee's condition report database to determine if any problems had been identified with the Performance Indicator data collected or transmitted for this indicator. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one Reactor Coolant System Specific Activity sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.4 Occupational Exposure Control Effectiveness

a. Inspection Scope

The inspectors sampled licensee submittals for the Occupational Exposure Control Effectiveness PI for the period from the fourth quarter 2016 through the third quarter 2017. The inspectors used PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 31, 2013, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's assessment of the PI for occupational radiation safety to determine if indicator-related data was adequately assessed and reported. To assess the adequacy of the licensee's PI data collection and analyses, the inspectors discussed with radiation protection staff the scope and breadth of its data review and the results of those reviews. The inspectors independently reviewed electronic personal dosimetry dose rate and accumulated dose alarms and dose reports and the dose assignments for any intakes that occurred during the time period reviewed to determine if there were potentially unrecognized occurrences. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one Occupational Exposure Control Effectiveness sample as defined in IP 71151-05.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors sampled licensee submittals for the radiological effluent Technical Specification/Offsite Dose Calculation Manual Radiological Effluent Occurrences PI for the period from the fourth quarter 2016 through the third quarter 2017. The inspectors used Performance Indicator definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, dated August 31, 2013, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's condition report database and selected individual reports generated since this indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous effluent summary data and the results of associated offsite dose calculations for selected dates to determine if indicator results were accurately reported. The inspectors also reviewed the licensee's methods for quantifying gaseous and liquid effluents and determining effluent dose. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one Radiological Effluent Technical Specification/Offsite Dose Calculation Manual Radiological Effluent Occurrences sample as defined in IP 71151-05.

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152)

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

a. Inspection Scope

As discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify they were being entered into the licensee's CAP at an appropriate threshold, adequate attention was being given to timely corrective actions, and adverse trends were identified and addressed. Some minor issues were entered into the licensee's corrective action program as a result of the inspectors' observations; however, they are not discussed in 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.

b. Findings

No findings were identified.

.2 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on operator fundamentals, but also considered the results of daily inspector CAP item screening discussed in Section 4OA2.1 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the 6-month period of July 2017 through December 2017, although some examples expanded beyond those dates where the scope of the trend warranted.

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

This review constituted one semi-annual trend review inspection sample as defined in IP 71152.

b. Observations and Assessments

The inspectors reviewed an emerging trend of human performance issues related to operator fundamentals during this inspection period. The inspectors reviewed condition reports, Nuclear Independent Oversight (NIO) group reports, Operations departmental performance review meeting packages, common cause evaluations, and observed training activities to ensure appropriate corrective actions were being taken to address performance and oversight gaps within the Operations department. During the inspection period, NIO, an Entergy Fleet Operations assessment team, the station mid-cycle assessment team, the Safety Review Committee, and the NRC inspectors noted instances where low level human performance errors occurred within the Operations department. Examples include five mispositioning events within a 3 month period, improper logging of risk mitigating actions and Limiting Condition for Operations in the narrative logs, placing the 'A' Diesel Generator (DG) fuel oil transfer pump in manual instead of automatic control during surveillance testing, and gaps in utilizing simulator critiques and crew performance notebooks during training. Cumulatively, these issues illustrated a decline in the use of human performance tools to prevent errors while performing work in the field, a lack of oversight during field work, a relaxation in observations and enforcement of the appropriate standards, and signs of complacency; all of which could potentially impact nuclear safety.

The licensee appropriately entered these issues into the CAP and completed timely common cause evaluations and performance analyses to determine the causes of the performance decline. Corrective actions included requirements for peer checks/verifications of all field activities, requirements for oversight and observation of field activities, focused training on operator fundamentals, and the reinforcement of procedure use and adherence. The number of human performance issues subsequently declined in the second half of the inspection period. At the end of this inspection period, some corrective actions were still open and the effectiveness of the actions taken were still being assessed by the Operations department, NIO, and the fleet. However, the inspectors determined that the corrective actions taken to date appeared to be effective at addressing the identified gaps. The inspectors planned to continue to evaluate these actions during routine observations of the Operations department.

.3 Annual Follow-Up of Selected Issues: Interim Review of Corrective Actions Associated with Hourly Fire Tours

a. Inspection Scope

The inspectors selected the following condition report for an in-depth review:

- CR-PLP-2016-02650, Discrepancies Identified During Hourly Fire Tours.

As appropriate, the inspectors verified the following attributes during their review of the licensee's corrective actions for the above condition report and other related condition reports:

- complete and accurate identification of the problem in a timely manner commensurate with its safety significance and ease of discovery;
- consideration of the extent of condition, generic implications, common cause, and previous occurrences;
- evaluation and disposition of operability/functionality/reportability issues;

- classification and prioritization of the resolution of the problem commensurate with safety significance;
- identification of the apparent and contributing causes of the problem; and
- identification of corrective actions, which were appropriately focused to correct the problem;
- completion of corrective actions in a timely manner commensurate with the safety significance of the issue; and
- evaluation of the applicability for operating experience and communication of applicable lessons learned to appropriate organizations.

The inspectors discussed the corrective actions and associated evaluations with licensee personnel.

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

b. Observations and Assessments

During this quarterly inspection period, the inspectors completed an interim review of the licensee's corrective actions associated with the root cause evaluation performed under CR-PLP-2016-02650, Discrepancies Identified During Hourly Fire Tours. This review focused on the licensee's completion of certain corrective actions and the follow-up to identified discrepancies.

During the review, the NRC inspectors observed that corrective action (CA) items 22, 23, and 24 contained close-out statements that were not consistent with the original action. For example, the original CA-22 corrective action was to, "Revise fire tour training process to specify expectations for conduct of fire tours. Include a practical exercise and computer based training (CBT)." CA-22 was closed on September 14, 2016, stating that the officers had been trained in accordance with new fleet procedure EN-OP-139, "Fire Watch Program." The new fleet procedure specified the training requirements for officers, which included CBT, but did not include the need for a practical exercise. CA-22 was closed even though the officers had not received a practical exercise. The closure documentation showing the actions as completed, as described above, did not match the original CA as written.

On November 15, 2016, during a routine audit, the licensee's NIOS group identified this discrepancy and documented it in CR-PLP-2016-05450. Nuclear Independent Oversight also identified that this change to the CA, as written, was allowed by the licensee's CAP process if prior approval was granted by the Corrective Action Review Board (CARB) Chairman. NIOS did not find any evidence that the prior approval had been received or documented. NIOS identified a similar issue with CA-23 which was also documented in CR-PLP-2016-05450.

The inspectors also noted a similar discrepancy with CA-24, in which a change to the CA was made without prior approval and without documented evidence. The inspectors reviewed all of the corrective actions that were actually performed and determined that they appeared to be reasonable given the root and contributing causes that were identified in the root cause evaluation. The inspectors noted that the CARB Chairman was subsequently requested to review, and documented, approval of the revised corrective actions in CAs-22, -23, and -24; after the fact.

The licensee's failure to adhere to procedure EN-LI-102, "Corrective Action Program," to obtain approval from the CARB Chairman before revising several corrective actions was a performance deficiency and minor violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings." This issue was classified as a minor violation because the performance deficiency was not viewed as a precursor to a significant event; if left uncorrected it did not have the potential to lead to a more significant safety concern; was not associated with a performance indicator; and the performance deficiency did not adversely affect an associated cornerstone objective. As stated above, the identified discrepancies were corrected and documented.

c. Findings

No findings were identified.

.4 Annual Follow-Up of Selected Issues: Emergency Response Organization Task Qualification for Nuclear Plant Operator Trainees

a. Inspection Scope

The inspectors selected the following condition report for an in-depth review:

- CR-PLP-2017-04628, Task Qualification for Valve and Breaker Operation for the Nuclear Plant Operator Trainees Could Not be Verified in Learning Management System (LMS).

As appropriate, the inspectors verified the following attributes during their review of the licensee's corrective actions for the above condition report and other related condition reports:

- complete and accurate identification of the problem in a timely manner commensurate with its safety significance and ease of discovery;
- consideration of the extent of condition, generic implications, common cause, and previous occurrences;
- classification and prioritization of the resolution of the problem commensurate with safety significance;
- identification of corrective actions, which were appropriately focused to correct the problem; and
- completion of corrective actions in a timely manner commensurate with the safety significance of the issue.

The inspectors discussed the corrective actions and associated evaluations with licensee personnel.

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

b. Observations and Assessments

During this quarterly inspection period, the inspectors completed a review of the licensee's disposition and corrective actions associated with CR-PLP-2017-04628. This review focused on the licensee's immediate actions, review of the issue, and follow-up actions completed to ensure that Site Emergency Plan (SEP) staffing requirements were met.

On October 12, 2017, the licensee identified that task qualifications associated with valve and breaker operations (minor maintenance) could not be verified in their LMS for a group of eight nuclear plant operator (NPO) trainees. As allowed by the SEP, the licensee periodically assigned NPO trainees to fill NPO positions as part of their emergency response organization (ERO). This was based on the trainees completing the minor maintenance task qualification and/or qualification as members of the site fire brigade. When this issue was discovered, the licensee took corrective actions to establish the required number of fully qualified (i.e. all required task qualifications completed) NPOs as required by the SEP. The licensee reviewed this issue and determined that the required training for the minor maintenance task qualification was, in fact, completed for the eight affected individuals. The issue was determined to be a documentation error in LMS and there were no consequences to the plant or individuals. Additional corrective actions included creation of a specific NPO ERO qualification in LMS identifying that the valve and breaker operations task qualifications were completed.

The inspectors reviewed Operations shift rosters from June 1, 2017, to October 12, 2017, to determine when the eight affected individuals had been credited as NPOs assigned to the on-shift ERO. None of the individuals had been credited as part of the ERO prior to July 29, 2017. From July 29, 2017 to October 12, 2017, there were several shifts where they had been assigned as NPOs for the on-shift ERO. Also of note, a revision to the SEP was implemented on August 25, 2017, which allowed up to two individuals with minor maintenance task qualifications to be credited as NPOs for the on-shift ERO. The inspectors additionally reviewed the corrected LMS records and training records associated with the required minor maintenance task qualifications and requirements of the SEP. The required training for the minor maintenance task qualifications was completed on August 10, 2017 by seven of the eight affected individuals. The last individual completed the training on September 1, 2017. Based on this review, the inspectors concluded that there were three shifts where NPO trainees were assigned as on-shift ERO NPOs prior to completing all required task training for the minor maintenance qualification. On these three shifts and an additional three shifts, it was noted NPO trainees were assigned as on-shift NPOs prior to the implementation of the SEP revision that allowed credit as an ERO member.

The inspectors determined that the licensee's failure to ensure the required number of qualified NPOs were on-shift during these six shifts was a minor violation of 10 CFR 50.54(q)(2). This issue was classified as a minor violation because the performance deficiency was not viewed as a precursor to a significant event; if left uncorrected the performance deficiency did not have the potential to lead to a more significant safety concern; the performance deficiency was not associated with a performance indicator; and the performance deficiency did not adversely affect the emergency preparedness cornerstone objective. Specifically, the inspectors determined that all required functions of the ERO on-shift staffing analysis were met by qualified

personnel and that the effectiveness of the ERO was not degraded. This issue was discussed with the licensee and subsequently entered into their CAP as CR-PLP-2017-05505, NRC Identified: Questions Whether the Shift Staffing Met the Requirements of the Site Emergency Plan.

c. Findings

No findings were identified.

.5 Annual Follow-Up of Selected Issues: Elevated Levels of Tritium Indicated During Groundwater Sampling

a. Inspection Scope

The inspectors selected the following condition reports for an in-depth review:

- CR-PLP-2016-05360, Quarterly Groundwater Sampling Results Contain Unexpected Indication in One Monitoring Well; and
- CR-PLP-2017-04214, Results for Tritium in TW-7 Exceeded the T-91 ODMI Trigger Point.

As appropriate, the inspectors verified the following attributes during their review of the licensee's corrective actions for the above condition reports and other related condition reports:

- complete and accurate identification of the problem in a timely manner commensurate with its safety significance and ease of discovery;
- consideration of the extent of condition, generic implications, common cause, and previous occurrences;
- evaluation and disposition of operability/functionality/reportability issues;
- classification and prioritization of the resolution of the problem commensurate with safety significance;
- identification of the root and contributing causes of the problem; and
- identification of corrective actions, which were appropriately focused to correct the problem; and
- completion of corrective actions in a timely manner commensurate with the safety significance of the issue.

The inspectors discussed the corrective actions and associated evaluations with licensee personnel.

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

b. Observations and Assessments

During this quarterly inspection period, the inspectors completed a review of the licensee's identification, evaluation, and corrective actions associated with unexpected tritium results identified during routine groundwater sampling as identified

in CR–PLP–2016–05360, Quarterly Groundwater Sampling Results Contain Unexpected Indication in One Monitoring Well, and CR–PLP–2017–04214, Results for Tritium in TW–7 Exceeded the T–91 ODMI Trigger Point. This review focused on the licensee’s assessment of the associated issues and completion of corrective actions.

On November 2, 2016 and November 3, 2016, while conducting routine quarterly groundwater sampling of on-site monitoring wells, the licensee identified an elevated level of tritium in monitoring well 11 (MW–11) that although well below the drinking water standard, was elevated when compared to the existing trend. MW–11 is located within the plant protected area and all indications of elevated tritium identified during sampling were confined to the protected area. No increased levels of tritium were identified in off-site wells. Prompt troubleshooting of the cause of the elevated tritium level was conducted, which included increasing the sampling frequency for MW–11 and the surrounding wells. The licensee performed an adverse condition analysis and determined that the direct cause of the elevated tritium level was leakage from Utility Water Storage Tank (Tank) T–91. Tank T–91 was subsequently drained on November 23, 2016 and placed out of service. A small amount of residual water was removed from the tank on December 3, 2016, and the tank was subsequently inspected and tested to determine if any defects existed. The internal coating of T–91 was identified as delaminating in some areas. The tank remained empty and out of service until June 2017, when the tank internals were recoated to correct the delamination condition. Some delays in the repairs to T–91 were encountered due to temperature limitations for applying the new coating, which could not be performed during cold weather. The licensee observed that tritium levels decreased during the time between December 2016 and June 2017. The sampling results for the monitoring wells surrounding MW–11 remained as expected, which provided the licensee with some assurance that the leak was confined to the area surrounding T–91. After returning T–91 to service, the licensee conducted weekly groundwater samples to validate that the tank repairs were effective. They also implemented an operational decision-making instruction (ODMI) which defined the appropriate responses for any unanticipated rises in tritium levels after T–91 was returned to service.

The inspectors reviewed CRs, monitoring well sampling results, and the corrective actions associated with the T–91 adverse condition analysis. The inspectors determined that the licensee’s actions were appropriately focused to correct the problem commensurate with the safety significance of the issue. Additionally, the inspectors observed the draining of T–91 and the licensee’s troubleshooting and repair efforts. The inspectors determined that the corrective actions were completed in a timely manner commensurate with the safety significance of the issue.

On September 12, 2017, as part of the weekly sampling associated with the aforementioned corrective actions, the licensee identified an unexpected rise in tritium levels in temporary well 7 (TW–7). The elevated level of tritium was well below the drinking water standard, but was elevated when compared to the existing trend. TW–7 is located within the plant protected area and all indications of elevated tritium observed during sampling were confined to the protected area. No increased levels of tritium were observed in off-site wells. The licensee completed a failure modes analysis for this issue and increased well sampling to twice per week. They identified possible failure modes and reviewed the well sampling data to conclude that the most likely source of the unexpected tritium levels was not a new, unidentified active leak. During bi-weekly sampling, the licensee identified a strong correlation between an increased level of

groundwater and the rise in tritium levels. It was determined that the most likely source was un-remediated soil from previous corrective actions to inspect and repair a (now abandoned) buried pipe that traversed from the turbine building drain system to an outdoor tank. The bi-weekly sampling results confirmed that the elevated tritium levels were confined to the area surrounding the abandoned piping, which was within the plant protected area. No increased levels of tritium were observed off-site.

The inspectors reviewed CRs, monitoring well sampling results, and the actions associated with the TW-7 elevated tritium levels. Additionally, the inspectors attended troubleshooting meetings and assessed the licensee's failure modes analysis. The inspectors determined that the licensee's actions were appropriately focused to correct the problem commensurate with the safety significance of the issue.

c. Findings

No findings were identified.

4OA5 Other Activities

.1 (Closed) Unresolved Item 05000255/2017003-01, Left Train Emergency Diesel Generator Load Sequencer Failure

a. Inspection Scope

During this inspection period, the inspectors reviewed Unresolved Item (URI) 05000255/2017003-01, "Left Train Emergency Diesel Generator Load Sequencer Failure." In August 2017, the Left Train DG load sequencer failed, causing control room alarms, declaration of the associated DG as inoperable, and entry into the appropriate Technical Specification (TS) action statement. The failed module was replaced and subsequently tested at an on-site lab. The results from these tests were analyzed in an equipment failure evaluation, which identified the direct cause of the failure as a memory fault in the sequencer module that caused the sequencer to lock-up and not run its program. The licensee could not determine whether the fault was within the memory module, memory processing interface circuitry, or the executive module.

Further analysis by a vendor was completed after the URI was identified. The inspectors reviewed the results of the vendor analysis and any potential changes those results had on the conclusions of the apparent cause evaluation and related corrective actions. The vendor could not completely replicate the conditions that were observed in the plant. However, the vendor did note during testing that the memory cartridge was not always seated flush to the module header. When comparing the memory cartridge to the executive cartridge, it was found that the executive cartridge contained an adhesive-backed rubber cushion which allowed it to seat more securely into the module. The vendor recommended the licensee obtain memory cartridges with adhesive-backed rubber cushions or self-locking tabs to ensure proper seating and contact in the future. The vendor determined the looseness of the cartridge was a potential cause of the issue based on this configuration potentially causing an interruption in the connection of the module, which may have disturbed the flow of information causing the fault. The licensee assigned an enhancement action to update the maintenance procedure to ensure these cartridges were seated flush and tight when installed. The inspectors questioned the thoroughness of the licensee's updated corrective actions. Specifically, the inspectors questioned why the licensee had not followed the vendor's

recommendation of ensuring self-locking tabs or rubber cushions on the modules when purchased. Subsequently, the licensee entered this issue into their CAP and created an additional action to require the purchase specifications be updated with the aforementioned recommendations.

The inspectors also reviewed the procurement information for the memory module, executive module, and sequencer package as a whole. No changes had been made to the purchasing specifications over the time frame reviewed and specific information on whether the modules contained anti-movement features were not included in those packages. The licensee completed a review of the modules in stock and validated all those modules contained either the self-locking tabs or rubber cushion. The licensee was not able to validate what was currently installed in the plant from procurement records and, due to the high risk of initiating a plant transient of performing an online inspection, the licensee decided to schedule the installed component inspections during the next refueling outage. The inspectors also performed an independent operating experience review for similar plant events or failures and did not identify any relevant information.

b. Findings and Observations

Based on the aforementioned reviews, observations, and discussions, the inspectors concluded that the potential cause of a loose connection between the memory cartridge and the sequencer module was an issue of concern. However, the inspectors determined that this issue of concern was not a failure of the licensee to meet a regulatory requirement or a self-imposed standard and it was not reasonably within the licensee's ability to foresee and correct. Therefore, no performance deficiency existed.

This Unresolved Item is closed. Documents reviewed are listed in the Attachment.

.2 (Closed) Unresolved Item 05000255/2014008–12, Component Cooling Water System Licensing Bases

a. Inspection Scope

In 2014, the NRC completed a Component Design Basis Inspection, the results of which were documented in IR 05000255/2014008 (ML14338A848). In that inspection, the inspectors opened URI 05000255/2014008–12, "Component Cooling Water [CCW] System Licensing Bases." This URI was related to the licensing bases for the CCW system at Palisades, and the types of failures the licensee was required to postulate and evaluate for that system. Specifically, the inspectors were concerned that the CCW system could be rendered inoperable due to a nonsafety-related component failure which could lead to: (1) a loss of adequate containment heat removal capability during a design basis accident; and (2) a loss of cooling to the engineered safeguard system pumps that could not be mitigated from the main control room.

In 2015, the NRC discussed this URI in IR 05000255/2015004 (ML16047A125). At that time, the NRC closed a related URI (URI 05000255/2014008–11), but URI 05000255/2014008–12 remained open because it warranted further inspection. The closure of URI 05000255/2014008–11 partially addressed the inspectors' concern that a nonsafety-related component failure inside containment could render the CCW system inoperable. However, the inspectors were still concerned that the design of the

Palisades plant was originally capable of tolerating a complete loss of the CCW system during a design basis accident, and that this design capability had been removed by subsequent changes to the plant.

From October 2015 until August 2017, the inspectors performed additional in-office inspection activities to evaluate this URI. These inspection activities consisted of additional reviews of licensee documents, NRC requirements, NRC Safety Evaluation Reports, and NRC guidance documents. The inspectors also requested and received technical support from the NRC's Office of Nuclear Reactor Regulation (NRR) Division of Safety Systems Reactor Systems Branch and Balance of Plant Branch technical staff and management as part of this effort.

b. Findings and Observations

No findings were identified.

The NRC discussions between the regional inspectors and the NRR technical staff focused on the original licensing basis of the CCW system and how a failure of that system could impact: (1) the redundancy of the containment cooling systems; and (2) the licensee's ability to safely shutdown and cool down the plant following a design basis accident. The NRR technical staff determined that Palisades was not required to demonstrate the plant could be safely shutdown and cooled down following a design basis accident concurrent with a passive failure of the safety-related portions of the CCW system. In addition, the NRR technical staff concluded that the existing configuration of the containment cooling systems at the time the URI was opened had been accepted by NRR during the review of Palisades response to IE Bulletin 80-04, "Analysis of a Pressurized Water Reactor Main Steam Line Break with Continued Feedwater Addition," and the review and acceptance of Palisades License Amendment Request 104 for removal of containment air cooler fan V-4A from the TSs.

Therefore, based on the conclusions from the NRR technical staff, the inspectors did not identify any violations of NRC requirements and consider URI 05000255/2014008-12 closed.

4OA6 Management Meetings

.1 Exit Meeting Summary

On January 16, 2018, the inspectors presented the inspection results to Mr. C. Arnone, Site Vice President, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

.2 Interim Exit Meetings

Interim exits were conducted for:

- The inspection results for the closure of URI 05000255/2017008–12, Component Cooling Water System Licensing Bases, with Mr. C. Arnone, Site Vice President, and other members of the licensee staff on October 26, 2017;
- The inspection results of the Emergency Preparedness Program inspection with Mr. O. Gustafson, Director of Regulatory and Performance Improvement, conducted by telephone on November 28, 2017; and
- The inspection results for the Radiation Safety Program review with Mr. D. Corbin, General Manager Plant Operations, on November 16, 2017.

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

C. Arnone, Site Vice President
D. Corbin, General Manager Plant Operations
B. Baker, Operations Manager – Shift
T. Davis, Regulatory Assurance
N. DeMaster, Outage Manager
B. Dotson, Regulatory Assurance
O. Gustafson, Director of Regulatory and Performance Improvement
J. Hardy, Regulatory Assurance Manager
J. Haumersen, Site Projects and Maintenance Services Manager
G. Heisterman, Maintenance Manager
M. Lee, Operations Manager – Support
D. Lucy, Production Manager
D. Malone, Emergency Planning Manager
T. Mulford, Operations Manager
W. Nelson, Training Manager
D. Nestle, Radiation Protection Manager
K. O'Connor, Site Engineering Director
C. Plachta, Nuclear Independent Oversight Manager
M. Soja, Chemistry Manager
B. Sova, Design Engineering Manager
J. Tharp, Security Manager

U.S. Nuclear Regulatory Commission

E. Duncan, Chief, Reactor Projects Branch 3
R. Dennig, Branch Chief
E. Oesterle, Branch Chief
A. Sallman, Senior Reactor Systems Engineer
J. Bettel, Reactor Systems Engineer

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000255/2017004-01	NCV	Improperly Connected M&TE Leads to Unexpected AFU Fan Trip (1R22)
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Closed

05000255/2017004-01	NCV	Improperly Connected M&TE Leads to Unexpected AFU Fan Trip (1R22)
05000255/2017003-01	URI	Left Train Emergency Diesel Generator Load Sequencer Failure (4OA5.1)
05000255/2014008-12	URI	Component Cooling Water System Licensing Bases (4OA5.2)

Discussed

None.

LIST OF DOCUMENTS REVIEWED

The following is a partial list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspector reviewed the documents in their entirety, but rather that selected sections or portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

1R01 Adverse Weather Protection

- AOP-38, Acts of Nature, Revision 11
- CR-PLP-2017-04649, Received Alarm EK-1148, Fire System Panel C-47, C-47A/B or C-49 Off Normal, October 14, 2017
- CR-PLP-2017-04653, EC-1003, Control Panel for Main and Station Power, and Startup XMFR Deluge has a Ground Fault Alarm that is Alarming and Clearing, October 15, 2017
- CR-PLP-2017-04657, Entered AOP-38, Acts of Nature, Due to Gale Warning, October 14, 2017
- CR-PLP-2017-04658, Nuclear Plant Operator Noted that the Recent Heavy Rains Caused Some Minor Wash-Outs, October 16, 2017
- CR-PLP-2017-04788, NRC Resident Identified Active Water Leakage in the 1-2 Emergency Diesel Generator Room, October 23, 2017
- CR-PLP-2017-04790, Entered AOP-38, Acts of Nature, Due to a Gale Warning for the Waters of Lake Michigan, October 23, 2017
- CR-PLP-2017-04792, Roof Leaking from the East Mezzanine of the Turbine Building, October 23, 2017
- CR-PLP-2017-04804, An Operator Recognized Water Leaking from a Crack in the Concrete Ceiling in the Vestibule Between the 1-1 and 1-2 Emergency Diesel Generator Rooms, October 23, 2017
- CR-PLP-2017-04807, Due to a Large Amount of Rain Fall On-Site, There is Water Intrusion into the 1-1 Emergency Diesel Generator Room, October 23, 2017

1R04 Equipment Alignment

- AOP-35, Loss of Service Water Basis, Revision 1
- AOP-35, Loss of Service Water, Revision 0
- AOP-35, Loss of Service Water, Revision 0
- AOP-38, Attachment 2, Restore Out of Service Equipment Related to the Ultimate Heat Sink as Soon as Possible, P-41, Revision 11
- CR, PLP-2017-00596, Received Alarm EK-1129, Service Water Pump Bay Low Level, Unexpectedly, February 19, 2017
- CR-PLP-2016-04351, Piping Located Near the Turbine Building South-West Stairwell is Shaking Excessively, September 14, 2016
- CR-PLP-2016-04373, Loose Bolt on a Pipe Support Located at CV-0839, September 15, 2016
- CR-PLP-2016-04514, MV-SW607 SW Pump P-7C Discharge Pressure Instrument Root Leaks by Approximately 10-20 ml/sec, September 23, 2016
- CR-PLP-2016-04976, Missing Bolt on Engine Exhaust Manifold Heat Shield on K-6B, Emergency Diesel Generator 1-2, October 18, 2017
- CR-PLP-2016-05288, 52-1306 Warm Water Recirculation Pump P-5's Auto Trip Indicator Tripped Out, November 3, 2016
- CR-PLP-2016-05536, Oil Sample From C-3B Appeared Slightly Milky and had a Small Amount of Sediment in the Bottom, November 19, 2016

- CR-PLP-2016-05648, Minor Leak at the Threaded Joint on the Service Water Inlet Connection to VC-10, November 29, 2016
- CR-PLP-2016-05842, C-16B Would Not Start in Hold, December 9, 2016
- CR-PLP-2017-00352, CV-1339, Chlorinator Service Water Supply Control Valve, has a Severity Level 4 Air Leak, January 28, 2017
- CR-PLP-2017-00602, C-3B 1-2 Emergency Diesel Generator Air Compressor's Oil was Found to be Brown, Milky and had Sludge Present, February 19, 2017
- CR-PLP-2017-01481, Severity Level 3 Leak was Found on the North West Corner of F-2B, Housing for SWS Basket Strainer BS-1319, April 12, 2017
- CR-PLP-2017-01902, It Took the NPOs an Excessively Long Time to get CV-1359, Noncritical Service Water Shutoff, Pinned in Manual, April 28, 2017
- CR-PLP-2017-01956, Safety Related Cotter Pins are Not Specified, April 29, 2017
- CR-PLP-2017-02074, During Work Order 52681033-01, Found Low Air Pressure to Solenoid, May 2, 2017
- CR-PLP-2017-02216, A Severity Level 2 Leak on E-54B, Component Cooling Heat Exchanger, was Identified, May 5, 2017
- CR-PLP-2017-02373, Preferred Service Water Pump was Not in Service During the PCS Drain, May 10, 2017
- CR-PLP-2017-02615, Noted that P-7C Packing Gland Studs Need to be Cleaned or Replaced, May 20, 2017
- CR-PLP-2017-02818, MV-SW717, SG B/D HX E-31 Service Water Outlet, Needs a Packing Adjustment, June 6, 2017
- CR-PLP-2017-02888, Found Service Water Discharge Compositor in "Halt Sampling," June 12, 2017
- CR-PLP-2017-03263, Exhaust Heat Shield East Side Upper Mounting Bolt Missing Just South of Turbocharger on K-6B, July 8, 2017
- CR-PLP-2017-03399, Service Water Compositor Pump Tubing Found Leaking, July 17, 2017
- CR-PLP-2017-03695, Found E-15B, Turbine Generator K-1 Lube Oil Cooler, Leaking at Approximately 60 Drops per Minutes, August 6, 2017
- CR-PLP-2017-04015, NRC Identified, PCV-2501, Diesel Generator 1-1 SW Inlet CV-0884 A/S Pressure Control has an Air Leak on the Bleed Valve, August 29, 2017
- CR-PLP-2017-04285, NIOS Identified: EDG 1-2 Copper Instrument Air Line in Contact with Coated Steel Beams, September 19, 2017
- CR-PLP-2017-04585, P-7B Pump Brace Brackets are Heavily Corroded, October 10, 2017
- CR-PLP-2017-04673, P-7B Does Not have Visible Packing Leakoff, October 17, 2017
- CR-PLP-2017-04711, Manual Valve MV-SW602B was Found Leaking By Severely, October 18, 2017
- CR-PLP-2017-04735, Failure of Clamps Installed Under EC-5885, October 19, 2017
- CR-PLP-2017-05230, Found Service Water Compositor Off, November 14, 2017
- CR-PLP-2017-05339, P-7A has No Further Packing Adjustment Remaining, November 20, 2017
- CR-PLP-2017-05364, Service Water Pump 7C Pump Bowl Drain Line Seems to be Partly Blocked, November 25, 2017
- CR-PLP-2017-05379, Performing Packing Adjustments on P-7C Noted that No More Adjustment Available in the Follower, November 27, 2017
- CR-PLP-2017-05379, While Performing Packing Adjustments on P-7C Service Water Pump, Under WO 464603, No More Adjustment Available in the Follower, November 27, 2017
- CR-PLP-2017-05427, MV-SW342, SW Pump P-7A Mini-Flow, a Large Packing Leak was Noticed, November 29, 2017
- CR-PLP-2017-05492, MV-SW231, Service Water Booster Pump P-25B Suction, No More Adjustment Left on the Packing Gland, December 4, 2017

- CR-PLP-2017-05685, Conduit Separated Being Held by Duct Tape Going to POS-0823B, Closed Limit Switch for CV-0823, December 12, 2017
- DBD 1.02, Service Water System, Revision 10
- DBD-1.08, Ultimate Heat Sink, Revision 5
- EC 71689, Document Acceptability of Using Q3 Cotter Pin Under Catalog ID 2829299 for Coupling Retainer for Enertech Butterfly Valves, Revision 0
- EC 75104, Maximum Service Water Flow Through Failed BS-1319 dP Tubing
- M-205, Piping & Instrument Diagram, Sheet 2, Revision 72
- M-207, Piping & Instrument Diagram Auxiliary Feedwater, Sheet 2, Revision 41
- M-208, Piping & Instrument Diagram, Non-Critical Service Water System, Sheet 1, Revision 105
- M-208, Piping & Instrument Diagram, Service Water System, Sheet 1B, Revision 41
- M-208, Piping & Instrument Diagram, Service Water System, Sheet 1A, Revision 65
- M-208, System Diagram, Service Water System, Sheet A, Revision 29
- M-214, Piping & Instrument Diagram, Lube Oil, Fuel Oil & Diesel Generator System, Sheet 1, Revision 81
- M-653, Piping & Instrument Diagram, Cooling Tower System, Sheet 3, Revision 65
- M-653, Piping & Instrument Diagram, Cooling Tower System, Sheet 4, Revision 7
- RI-95C, Auxiliary Feedwater Flow FT-0736 Instrument Loop Calibration, Revision 6
- SOP-12, Feedwater System, Revision 76
- SOP-14, Circulating Water and Chlorination Systems, Revision 87
- SOP-15, Service Water System, Revision 67
- SOP-15, Service Water System, Revision 67
- SOP-22, Emergency Diesel Generators, Revision 74
- WO 402785, K-6B; 1-2 Diesel Generator Heat Shield and Fasteners Broken Tabs and Brackets
- WO 417803, JB24-H3.18; 1-2 Diesel Generator Pipe Hanger Broken
- WO 447440, CV-1339; Instrument Air Leak on Valve
- WO 456453, Pipe Support has Loose Bolt Located at CV-0839-VLC
- WO 4679945, K-6B; 1-2 Diesel Generator Exhaust Shield East Side Upper Mounting Bolt Missing
- WO 471605, Broken Hanger JB24-H3.14
- WO 489882, P-7C Packing Follower Out of Travel
- WO 490248, MV-SW601, P-7C Discharge Pressure SW PS-1318 Isolation Unsupported Length
- WO 490280, P-7B, Service Water Pump Instrument Not Anchored to Wall
- WO 491104, CV-0823; Investigate Increase in Stroke Times Associated with Valve
- WO 5273167, C-3B; 1-2 Emergency Diesel Generator Air Compressor Semi-Annual PM

1R05 Fire Protection

- CR-PLP-2017-04765, The KELM Rack in the East Engineered Safeguards North of P-67A Low Pressure Safety Injection Pump and the Shield Blanket Above P-8C Motor Driven Auxiliary Feedwater Pump in West Engineered Safeguards Currently do Not have Transient Combustible Evaluation Permits, October 20, 2017
- CR-PLP-2017-05100, Water Dripping from the Seam on the Bottom of V-96, Control Room Ventilation Main Supply Fan, at a Rate of 120 Drops/Minute, November 6, 2017
- CR-PLP-2017-05105, Fire Damper Inspections per Procedure RM-93A Identified CD-49 has One Return Spring, November 6, 2017
- DBD-7.10, NFPA 805 Fire Protection Program, Revision 1
- EA-FPP-03-001, Analysis of Combustible Loading at Palisades Nuclear Plant, Revision 3

- EN-DC-161, Control of Combustibles, Revisions 17
- EN-OP-139, Fire Watch Program, Revision 1
- Fire Tour/Fire Watch Logs
- FPIP-4, Fire Protection Systems and Fire Protection Equipment, Revision 39
- Pre Fire Plan 13A, Auxiliary Building Main Corridor – North and South, Elevation 590'
- Pre Fire Plan 24, Auxiliary Feedwater Pumps Room, Elevation 571'
- Pre Fire Plan 28, West Engineered Safeguards Room, Elevation 570'
- Pre Fire Plans 29, 30, and 31, Mechanical Equipment Rooms, Elevations 629' and 639'
- RM-93A, Inspection and Testing of Palisades Plant Control Room HVAC Fire Dampers –
- Transient Combustible Evaluations 16-04, 17-208, 17-209

1R11 Licensed Operator Regualification Program

- AOP-23, Primary Coolant Leak, Revision 2
- AOP-3, Main Feedwater Transients, Revision 1
- ARP-4, Primary System Volume, Level, and Pressure Scheme EK-07, Revision 68
- ARP-7, Auxiliary Systems Scheme EK-11 (C-13), Revision 101
- EAL Basis Document, Revision 7
- EOP Supplement 12, 'A' SGTR Isolation Checklist, Revision 8
- EOP Supplement 4, HPSI and LPSI Flow Curves, Revision 6
- EOP-1.0, Standard Post-Trip Actions, Revision 19
- EOP-9, Functional Recovery, Revision 23
- SEP Supplement 1, EAL Wall Charts, Revision 3
- Simulator Exam Scenario-240, Revision 1
- Site Emergency Plan, Revision 29

1R12 Maintenance Effectiveness

- C-PAL-94-0799, Generator Hydrogen Temp Control Valve CV-0839 Failure, September 30, 1994
- CR-PLP-2009-02466, TIC-0836 is Unreliable, April 29, 2009
- CR-PLP-2016-00635, P-7A has Exceeded 75% of its Maintenance Rule Performance Criteria of > 98.4% Availability per 12 Months, February 4, 2016
- CR-PLP-2016-03260, Failure of MC-34R101, Right Channel Diesel Generator Load Sequencer, July 18, 2016
- CR-PLP-2017-00065, Received Alarm EK-1171, Component CLG EX E-54B Hi-Lo Temp Unexpectedly, January 8, 2017
- CR-PLP-2017-01369, The SWS/CSW System Now has Two Functional Failures in the Last 24 Months, April 5, 2017
- CR-PLP-2017-01547, Cause of the CV-0823c CCW Heat Exchanger E-54A SW Outlet, Failure was Determined to be the Cracked and Aged Elastomers in the Valve Actuator, April 17, 2017
- CR-PLP-2017-01636, Extent of Condition Review of VOP-0861, Containment Air Cooler VHX-1, April 21, 2017
- CR-PLP-2017-01637, Extent of Condition Review of VOP-0824, Containment Air Coolers Service Water Outlet Isolation, April 21, 2017
- CR-PLP-2017-01638, Extent of Condition Review of VOP-1103, Containment Sump Outlet Isolation, April 21, 2017
- CR-PLP-2017-01639, Extent of Condition Review of VOP-1104, Containment Sump Outlet Isolation, April 21, 2017

- CR-PLP-2017-01656, Extent of Condition Review of VOP-0873, Containment Air Cooler VHX-3 Service Water On-Off Control, April 23, 2017
- CR-PLP-2017-01657, Extent of Condition Review of VOP-0867, Containment Air Cooler VHX-4 Service Water On-Off Control, April 23, 2017
- CR-PLP-2017-03659, Failure of MC-34L101, Left Channel Diesel Generator Load Sequencer, August 3, 2017
- CR-PLP-2017-04007, Sequencer (ESS-SEQ) has Exceeded Maintenance Rule Performance Criteria, August 28, 2017
- CR-PLP-2017-05436, NRC Identified: Determine if Additional Corrective Actions are Needed for CR-2017-3659 Based on Vendor Recommendations, November 30, 2017
- CR-PLP-2017-05579, CV-0823 Stroked Open in 6.3 Seconds, December 7, 2017
- CR-PLP-2017-05748, Noticed Excessive Air Flow from the Vent Port on Cylinder Side of the Actuator, December 15, 2017
- CR-PLP-2017-07078, Attempted to Close CV-0823, CCW Heat Exchanger E-54A Service Water Outlet, March 21, 2017
- DBD-5.05, Design Base Accident (DBA) and Normal Shutdown (NSD) Sequencer, Revision 8
- EC 16883, Replace Obsolete Fisher Temperature Controllers that Use Wizard Generators-SIPD#894-Base EC, Revision 0
- EC 16883, Replace Obsolete Fisher Temperature Controllers that Use Wizard Generators-SIPD#894-Base EC, Revision 1
- EC 16883, Replace Obsolete Fisher Temperature Controllers that Use Wizard Generators-SIPD#894-Base EC, Revision 2
- EC 75280, CR-PLP-2017-05579 Operability Input, Revision 0
- EN-DC-204, Maintenance Rule Scope and Basis, Revision 4
- EN-DC-205, Maintenance Rule Monitoring, Revision 6
- EN-DC-205, Maintenance Rule Monitoring, Revision 6
- EN-DC-206, Maintenance Rule (a)(1) Process, Revision 3
- EN-DC-336, Plant Health Committee, Revision 11
- ESS-I-35, Installing Controller in the NSD/DBA Sequencers, Revision 3
- Palisades Maintenance Rule Periodic Assessment for January 1, 2015 to September 30, 2016
- PLP-RPT-12-00026, EGAD-EP-10 Palisades Maintenance Rule Scoping Document, Revision 1
- PLP-RPT-12-00026, Maintenance Rule Scoping Document, Revision 1
- SIPD 1006, Replace Fisher Temperature Controller Model 5190
- SIPD 894, Replace Obsolete Fisher Temperature Controllers that Use Wizard Generators
- System Health Report for Engineered Safety Features Actuation System, 3rd Quarter 2017
- System Health Report, CSW – Critical Service Water, February 2017
- WO 205248, TIC-0821, HHM, Replace Temperature Controller EC 16886/ECN 69755
- WO 211132, VOP-0824 HLM Perform Lockup Test to Determine Health of O-Rings
- WO 212298, VOP-0823 HLM Perform Lockup Test to Determine Health of O-Rings
- WO 282307, CV-0824; 60 DPM Leak Downstream CV-0824
- WO 451083, MC-34R101; Diesel Generator Load Sequencer Inoperable
- WO 464675, TIC-0821; Failed and Needs Repaired or Replaced
- WO 470500, VOP-0823, Rebuild Bettis Activator
- WO 473621, VOP-0824, Perform Drop Test
- WO 473621, VOP-0824; Containment Service Water Outlet Actuator Drop Test
- WO 481586, MC-34L101; Left Channel Sequencer DBA/NSD Circuit 1 Failure
- WO 491104, CV-0823; Investigate Increase in Stroke Times Associated with Valve
- WO 51657026, VOP-0867; Bettis Actuator Overhaul
- WO 51665108, VOP-0823, Rebuild Bettis Actuator (Contingency)
- WO 52207388, VOP-0861; Bettis Actuator Overhaul

- WO 52218725, CCW Heat Exchanger Temperature Controls and Indicators
- WO 52325906, CV-0826; Replace Valve Assembly with Spare
- WO 52405432, VOP-0873; Bettis Actuator Overhaul
- WO 52435580, CV-0823; Valve Diagnostic Testing
- WO 52450338, CCW Heat Exchanger Temperature Controls and Indicators
- WO 52540137, MC-34L101; Replace Controller/Sequencer Power Supply
- WO 52544791, Replace SV-0826, CCW Heat Exchanger E-54B Service Water
- WO 52706480, MC-34R101; Replace Controller/Sequencer Power Supply

1R13 Maintenance Risk Assessments and Emergent Work Control

- EN-DC-161, Control of Combustibles, Revision 17
- EN-IS-123, Electrical Safety, Revision 18
- WO 434622, P-7B; Replace Packing Shaft on Pump
- Admin 4.02, Control of Equipment, Revision 79
- WI-SWS-M-04, Service Water Pumps P-7B and P-7C Removal, Inspection, and Reinstallation, Revision 14
- CR-PLP-2017-04569, Entrance to 'C' Bus Area, Door-142, was Momentarily Blocked Open Without All the Requirements of Admin 4.02, Control of Equipment, Satisfied, October 9, 2017
- CR-PLP-2017-04589, Entered AOP-38, Acts of Nature, Due to a Gale Warning for the Waters of Lake Michigan to the West of Palisades, October 11, 2017
- CR-PLP-2017-04587, Received Control Room Alarm EK-1148, Fire System Panel C-47, C47A/B or C-49 Off Normal, Due to C-47 Being in Alarm, October 11, 2017
- EN-OP-115, Operations Log, Monday, October 9, 2017
- EN-OP-119, Protective Equipment Postings, Revision 8
- EN-OP-139, Fire Watch Program, Revision 1
- FPIP-4, Fire Protection Systems and Fire Protection Equipment, Revision 39
- EN-DC-127, Control of Hot Work and Ignition Sources, Revision 17
- CR-PLP-2017-04572, Evaluate for the Removal of Two Postings on P-7B Service Water Pump, October 10, 2017
- CR-PLP-2017-04571, Capacitor Cover on Motor of Electric Hoist on P-7B Service Water Pump is Out of Place, October 9, 2017
- WO 486094, P-55B; Drain Line from Weir to Seal Lube TK is Clogged – MDM
- CR-PLP-2017-04670, P-55B Charging Pump was Found to have Oil in the Overflow Weir of the Seal Lube System, October 16, 2017
- CR-PLP-2017-04457, Suspect the Seal Lube Tank Water on P-55B Charging Pump is Moving from the Seal Lube System to the Pump Crankcase, September 29, 2017
- CR-PLP-2017-04498, Indications that the Line that Returns to the Seal Lube Tank from the Weir Area on P-55B Charging Pump is Partially Clogged, October 3, 2017
- CR-PLP-2017-01348, B Charging Pump Seal Leakoff is Not a Consistent Flow, April 4, 2017
- M-202, Piping & Instrument Diagram, Chemical & Volume Control System, Sheet 1B, Revision 61
- EN-MA-125, Troubleshooting Control of Maintenance Activities, Revision 21
- Admin 4.11, Safety Function Determination Program, Revision 6
- Admin 4.02, Control of Equipment, Revision 79
- AOP-38, Acts of Nature, Revision 11
- Failure Modes and Effects Worksheet for V-26A, Air Filter Unit VF-26A Fan
- CR-PLP-2017-03950, Work Order 52681872 was Scheduled in the Wrong Protected Train Week, August 24, 2017
- CR-PLP-2017-04291, T-2 Meeting Failed to Meet Purpose/Objective, September 19, 2017

- CR-PLP-2017-04531, While Performing the T-2, Technical Rigor Meeting, it was Noted Activities Associated with Two Work Orders did Not have the Correct Schedule Grade, October 3, 2017
- CR-PLP-2017-04980, Integrated Risk Assessment for Work Order 52676053-01 was Incorrect, October 31, 2017
- CR-PLP-2017-05070, Palisades Daily Plant Status Report Published this Morning was Inaccurate with Respect to Site Risk Profile, November 3, 2017
- Operator's Risk Report for November 15, 2017
- Work Week 1746 Balance of Plant Schedule, November 13, 2017
- CR-PLP-2017-05263, The Core Exit Thermocouple Recorder (TRI-0101B1) Would Not Power Up, November 15, 2017
- CR-PLP-2017-05234, V-26A, Air Filter Unit VF-26A Fan, Stopped After 17 Seconds Following Start (by PPC Event Log), November 14, 2017
- CR-PLP-2017-05248, Entered AOP-38, Acts of Nature, Due to Forecasted Gale Warning for the Waters of Lake Michigan, November 14, 2017
- CR-PLP-2017-05270, Received Main and Station Power or Startup Transformer Valve Tamper/Fire Alarm Trouble in Excess of 20 Times Within a 15 Minute Time Period, November 16, 2017
- CR-PLP-2017-05275, Work Order 258759 was Removed from Scope the Day of Execution, November 15, 2017

1R15 Operability Determinations and Functionality Assessments

- ARP-8, Safeguards Safety Injection and Isolation Scheme EK-13 (EC-13), Revision 87
- CJ6307-1, Dedication Plan for A Eaton/Cutler Hammer Molded Case Circuit Breaker with Undervoltage Release, Revision 2
- CR-PLP-1993,00273, CV-0939, Failure to Close in Predetermined Time, September 23, 1993
- CR-PLP-2010-03833, RIA-1805 Containment Isolation Area Radiation Monitor has had a Slowly Lowering Output Trend, September 8, 2010
- CR-PLP-2013-04450, RIA-1805 Containment Isolation Monitor Indication has Lowered, October 14, 2013
- CR-PLP-2015-01209, RIA-1805 Containment Isolation Monitor Reads at Lowest Possible Reading, March 21, 2015
- CR-PLP-2017-02416, Containment Area Monitor RIA-1805 Low Out of As Found Tolerance, May 11, 2017
- CR-PLP-2017-02589, Y Phase Magnetic Pickup was Slightly Below Acceptance Criteria Value of 1600, May 17, 2017
- CR-PLP-2017-02807, LIA-0927 Shield Cooling Tank Level Fell from 47% to 41% Between 12:00 and 13:00 Readings, June 5, 2017
- CR-PLP-2017-04553, Installed Control Rod Clutch Breakers are Not the Same as Breakers that were Replaced, October 6, 2017
- CR-PLP-2017-04815, RIA-1805, Containment Area Monitor may be Degrading, October 24, 2017
- E-17, Logic Diagram, Containment High Radiation, Sheet 7, Revision 9
- E-227, Schematic Diagram, Area Radiation Monitor (RIA-1805), Sheet 3, Revision 14
- M-221, Piping & Instrument Diagram, Shield Cooling System, Sheet 1, Revision 39
- MI-6, Area Monitor Operational Check, Revision 14
- PLP-RPT-17-00022, Bioshield Structural Operability Evaluation Subjected to Elevated Temperatures, Revision 0
- RI-86F, Containment Isolation Monitor Calibration, Revision 16
- VEN-M1-0, Block Diagram Reactor Protective System, Sheet 114, Revision 13

- WO 196252, CV-0927, Perform Diagnostic Test/Adjust Seat Load
- WO 364917, RIA-1805; Radiation Monitor Trending Lower Over Time
- WO 429006, RI-86F - Containment Isolation Monitor Calibration
- WO 475913, 42-2/RPS; Right RPS Trip Breaker, Did Not Open on Reactor Trip
- WO 487720, RE-1805; Replace Detector During Next Refuel Outage (1R26)
- WO 51607985, CV-0927; Valve Leaks By, Repair Valve
- WO 52646122, 42-1/RPS; Replace Breaker
- WO 52764472, MI-6 - Area Monitor Operational Check

1R18 Plant Modifications

- ARP-8, Safeguards Safety Injection and Isolation Scheme EK-13 (EC-13), Revision 87
- CR-PLP-2017-02807, LIA-0927 Shield Cooling Tank Level Fell from 47% to 41% Between 12:00 and 13:00 Readings, June 5, 2017
- CR-PLP-2017-02851, Found Discrepancy Between M-398 Sheet 13 and the Tank Calibration Sheet and ARPs during Troubleshooting for T-62 Automatic Fill, June 7, 2017
- CR-PLP-2017-05755, NRC Identified, PAD-17-099 Should Have Contained More Detail, December 15, 2017
- EA-D-PAL-94-150-01, Change the Shield Cooling System Flow Rate to a Range of 134-154 gpm, Revision 1
- EC-73375, Alternate Shield Cooling System Coil Group Configurations, Revision 0
- EN-DC-136, Temporary Modifications, Revision 14
- EN-DC-136, Temporary Modifications, Revision 14
- EN-LI-100, Process Applicability Determination, Revision 20
- M-221, Piping & Instrument Diagram, Shield Cooling System, Sheet 1, Revision 39
- M-398, Level Settings Diagram, Shield Cooling Surge Tank T-62, Sheet 13, Revision 2
- M-71, Piping Drawing, Primary Shield Cooling Coils Plans, Revision 2
- M-72, Piping Drawing, Primary Shield Cooling Coils Sections and Details, Revision 1
- ODMI Implementation Action Plan Format, 'B' Coil Shield Cooling Leak in Cycle 26, Revision 1
- PAD 17-0151, Alternative Shield Cooling System Coil Group Configurations, Revision 0
- PAD 17-0205, Temporary Modification EC-72570, SV-0927; CV-0927; Bypass Solenoid Valve to Open CV-0927, SC Surge Tank T-62 Makeup, Revision 1
- SOP-29, Shield Cooling System, Revision 24
- TMOD 72570, SV-0927; CV-0927; Bypass Solenoid Valve to Open CV-0927, SC Surge Tank T-62 Makeup
- WO 477687, Shield Cooking 'B' Coil Leak (TMod Installed June 8, 2017)
- WO 477791, E-62B; 'B' Shield Cooling Coil Indicates it has a Leak – Repair (Scheduled RFO 26)
- WO 481477, CV-0932, SC Coil 'A' Inlet

1R19 Post Maintenance Testing

- Admin 9.20, Technical Specification Surveillance and Special Test Program, Revision 26
- CR-PLP-2016-01643, Observed CV-0608 to be 60% Open and Not be Moving, April 5, 2016
- CR-PLP-2016-01673, Curing Repairs to CV-0608, the Rod End Bearing was Found Damaged, April 7, 2016
- CR-PLP-2016-02271, Missed Sign-Offs in EN-MA-143, Use of VIPER or VOTES Infinity AOV Diagnostics for WO 443081, May 16, 2016
- CR-PLP-2017-01670, During Plant Shutdown CV-0608 Would Not go Full Close, April 23, 2017
- CR-PLP-2017-03080, CV-0608 Oscillating 10 – 15% on a 4 Second Cycle, June 25, 2017

- CR-PLP-2017-03175, The Wrong Valve Operator Diaphragm was Installed in Valve Operator VOP-3025, Shutdown Cooling Heat Exchanger to LPSI, June 30, 2017
- CR-PLP-2017-04240, The Motion of CV-0608 has Been Trending to a More “Jerky” Motion, September 14, 2017
- CR-PLP-2017-04474, MV-HED643 Near the End of Travel (About 90% Closed), Operation Became Difficult, October 2, 2017
- CR-PLP-2017-04475, Drive the Creation of a Contingency Work Order to Install a Block on CV-0608, October 2, 2017
- CR-PLP-2017-04490, During Troubleshooting for CV-0608, Moisture Separator Reheater Drain Tank T-5 Level Control Valve, a Small Steam Leak was Noted on the Valve Flange, October 3, 2017
- CR-PLP-2017-04496, Valve Operator for FI-0918 Low Side Isolation I1 is Loose, October 3, 2017
- CR-PLP-2017-04510, During a Post Maintenance Test Start of 1-1 Emergency Diesel Generator, the GasTech NO2 Detector Alarmed, October 4, 2017
- CR-PLP-2017-04513, NRC Identified: Water was Discovered Beneath the Drain Port Downstream of MV-DE513, Diesel Generator 1-1 Air Start Tank T-31B/D, October 4, 2017
- CR-PLP-2017-04532, Work Crew did Not Hang Signage in Accordance with EN-MA-118, October 4, 2017
- CR-PLP-2017-04555, NRC Identified Issue Regarding Operability of P-52A Component Cooling Water Pump Following Removal from Service for an Oil Change, October 6, 2017
- CR-PLP-2017-04604, Leak on Compression Fitting Immediately Down Stream of MV-SW604, October 11, 2017
- CR-PLP-2017-05170, During Diagnostic Testing of CV-3025 the M&TE C-Clamp for Seat Load did Not Respond Properly, November 8, 2017
- CR-PLP-2017-05172, During VOP-3025 Replace Operator Diaphragm Post-Maintenance Test, the Opening Stroke Times for CV-3025, ADC Heat Exchangers E-60A/B Outlet (MZ032), Were Fast, Twice, November 8, 2017
- CR-PLP-2017-05242, NIOS Identified, Match Marking was Not Performed During Disassembly of Compression Fittings, November 14, 2017
- CR-PLP-2017-05261, During Performance of WO 479155, CV-0608: T-5 Level Control Oscillating, Diagnostic Testing of POC-0608, Moisture Separator Drain Tank T-5 Positioner, the Crossover Pressure was Discovered as Being Lower than Normal, November 15, 2017
- CR-PLP-2017-05279, Unwanted Level Cycling and Premature Failure of Level Control Components in the Heater Extraction & Drain System, November 16, 2017
- CR-PLP-2017-05289, Procurement Engineering Needs to Confirm CAT-ID with Vendor to Match Correct Diaphragm, November 6, 2017
- CR-PLP-2017-05292, CV-0608 Friction Profile Changed, November 16, 2017
- EC 27144, Preconditioning Evaluation for CCW Pumps and Motor Oil Change PM Being Performed Prior to QO-15, Revision 0
- EN-DC-196, AOV Setpoint Control, Signature Analysis and Trending Evaluation, Revision 4
- EN-MA-125, Troubleshooting Control of Maintenance Activities, Revision 21
- QO-14, Inservice Test Procedure – Service Water Pumps, Revision 42
- QO-15 Basis, Inservice Test Procedure Component Cooling Water Pumps, Revision 14
- QO-15, Inservice Test Procedure – Component Cooling Water Pumps, Revision 38
- QO-42, Inservice Testing of Shutdown Cooling Control Valves, Revision 20\SOP-3, Safety Injection and Shutdown Cooling System, Revision 105
- SEP-PLP-IST-102, Inservice Testing of Selected Safety-Related Pumps, Revision 3
- SEP-PLP-IST-102, Inservice Testing of Selected Safety-Related pumps, Revision 3
- SOP-10, Extraction and Heater Drain system, Revision 39
- SOP-16, Component Cooling Water System, Revision 48

- SOP-22, Emergency Diesel Generators, Revision 74
- WO 434622, P-7B; Service Water Pump, Replace Packing Shaft on Pump
- WO 479155, CV-0608; T-5 Level Control Oscillating
- WO 479707, VOP-3025; Replace Operator Diaphragm
- WO 52588742, VOP-3025; Replace Diaphragm and Regulator
- WO 52661372, PCV-1479, 1-1 Diesel Generator Starting Air PCV Post-Maintenance
- WO 52753134, P-52A, Pump Bearing Oil Change (OPS553)
- WO 52767385, QO-15A –P-52A ISI Test Procedure, Component Cooling Pump
- WO 52768868, QO-4B-P7B, Inservice Test Service Water Pump

1R22 Surveillance Testing

- CR-PLP-2016-00347, Vibration Values Recorded in the Test Procedure do Not Match the Overall Vibration Values Recorded in the Vibration Analyzer, January 19, 2017
- CR-PLP-2016-01963, Vibration Value for Point M1Z (Motor Outboard Radial) was Acceptable but Higher than Normal, April 27, 2016
- CR-PLP-2016-04294, Vibration Reading Data for the Most Recent Performance of QO-14A was Recorded Incorrectly, September 12, 2016
- CR-PLP-2017-02288, During Performance of RO-144, Vibration Data did Not Meet Acceptance Criteria, May 7, 2017
- CR-PLP-2017-04210, The As-Found Value for FI-0727B was Out of Final Tolerance, September 13, 2017
- CR-PLP-2017-04682, Unable to Perform Calibration of FI-0736 (Auxiliary Feedwater flow to Steam Generator E-50B) during Performance of RI-95C, October 17, 2017
- CR-PLP-2017-04684, WO 486341 EX-63 Muffin Fan (FIN Work) had to be Rescheduled Due to RI-95C Auxiliary Feedwater Flow Loop Calibration Taking Longer than Scheduled, October 17, 2017
- CR-PLP-2017-05234, During Performance of RT-85D-A, Control Room Emergency Ventilation Filtration Testing, V-26A Stops after 17 Seconds, Following Start in Emergency Mode, November 14, 2017
- CR-PLP-2017-05254, Compression Fittings Must be Installed and Removed by Qualified Repair Persons, November 15, 2017
- CR-PLP-2017-05269, The Cause of V-26A Stopping was Identified Under Troubleshooting WO 489069, November 16, 2017
- CR-PLP-2017-05276, During Performance of RT-85D-A, it was Discovered that the Prefilters were Dirty, November 14, 2017
- CR-PLP-2017-05277, Top Gasket Between the Door and Casing of the Prefilter on VF-26A, Air Handling Unit V-26A Filter had Come Loose, November 14, 2017
- CR-PLP-2017-05299, VC-11 Control Room HVAC Refrigeration Condensing Unit, Failed to Start when the Handswitch was Taken to Auto, November 17, 2017
- CR-PLP-2017-05307, Replaced 1TR Relay for VC-11 Under Work Order 489412-01, November 17, 2017
- CR-PLP-2017-05411, EMA-1204, Motor for Service Water Pump P-7A, Failed the Polarization Index Test, November 29, 2017
- CR-PLP-2018-00039, NRC Identified Transcription Error, January 3, 2018
- DBD-1.03, Auxiliary Feedwater System, Revision 10
- EC 74903, V-26A Troubleshooting Conclusions, Revision 0
- EN-MA-125, Troubleshooting Control of Maintenance Activities, Revision 21
- EN-MA-156, Compression Fitting Installation, Disassembly, Inspection, and Reassembly, Revision 0
- EN-OM-126, Management and Oversight of Supplemental Personnel, Revision 5

- FI-0737, Instrument Calibration Sheet, Revision 9
- FIC-0737A, Instrument Calibration Sheet, Revision 7
- FS-0737, Instrument Calibration Sheet, Revision 6
- FS-0737A, Instrument Calibration Sheet, Revision 2
- HIC-0737A, Instrument Calibration Sheet, Revision 3
- MSI-I-12, Maintaining Environmental Qualification for Rosemount Transmitters, Revision 8
- P-7A Differential Pressure Trending Graph, July 1, 2015 – October 1, 2017
- QI-39, Auxiliary Feedwater Actuation System Logic Test, Revision 8
- QO-14 Basis, Inservice Test Procedure Service Water Pumps, Revision 17
- QO-14, Inservice Test Procedure – Service Water Pumps, Revision 42
- QO-16, Inservice Test Procedure – Containment Spray Pumps, Revision 39
- RI-95, Auxiliary Feedwater Flow Instrument Loop Calibration
- RI-95D, Auxiliary Feedwater Flow FT-0737 Instrument Loop Calibration, Revision 7
- RI-95D, Auxiliary Feedwater Flow FT-0737 Instrument Loop Calibration, Revision 8
- RT-85D, Control Room Emergency Ventilation Filtration Testing, Revision 16
- RT-85D-A, Control Room Emergency Ventilation Filtration Testing – A Train, Revision 2
- RT-85D-A, Control Room Emergency Ventilation Filtration Testing – A Train, Revision 1
- SEP-PLP-IST-102, Inservice Testing of Selected Safety-Related Pumps, Revision 3
- WO 52691609, RI-95C-Auxiliary Feedwater Flow FT-0736 Instrument Loop Calibration
- WO 52692091, RI-95D-Auxiliary Feedwater Flow FT-0737 Instrument Loop Calibration
- WO 52703756, RT-85D-A - Inplace HEPA and Charcoal Filter Testing
- WO 52778578, QO- 4A – P-7A, IST Service Water Pump

1EP4 Emergency Action Level and Emergency Plan Changes

- 10 CFR 50.54(Q) Training Documentation - Exemption Approval Form for Daniel G. Malone, February 27, 2012
- 10 CFR 50.54(Q)(3) Evaluation – Site Emergency Plan Revision 28 Evaluation, March 22, 2017
- 10 CFR 50.54(Q)(3) Screening – Site Emergency Plan Revision 28 Screen, March 20, 2017
- CR-PLP-2017-01499, 10 CFR 50.54(q) Screening Form for Procedure SEP "Site Emergency Plan" Contains the Incorrect Procedure Revision Number, April 13, 2017
- EAL Basis, Emergency Action Level Technical Bases, Revision 7
- EN-EP-305, Attachment 9, 10 CFR 50.54(q) Training Documentation, Revision 4
- EN-EP-305, Attachment 9.4, 10 CFR 50.54(q) Training Documentation for B. Cable, April 13, 2017
- EN-EP-305, Emergency Planning 10 CFR 50.54(q) Review Program, Revision 4
- KLD TR-839, Palisades Power Plant 2016 Population Update Analysis, September 21, 2016
- Palisades Nuclear Plant On-Shift Staffing Analysis, Revision 3
- SEP, Palisades Nuclear Plant Site Emergency Plan, Revisions 27 and 28

1EP6 Drill Evaluation

- AOP-35, Loss of Service Water, Revision 0
- CR-PLP-2017-04873, NIOS Identified: Required Checklists for Activation and Operation of the Operations Support Center were either Not Used or were Inadequately Placekept, October 26, 2017
- CR-PLP-2017-05112, During October 25, 2017, Emergency Planning Drill, the Allocated Time of 15 Minutes for the Required Information to Pass from the Station to All OROs is Excessively Used by the Station, November 7, 2017
- CR-PLP-2017-05121, Intent of Procedural Guidance was Not met During October 25, 2017, Emergency Planning Drill, November 7, 2017

- CR-PLP-2017-05123, Multiple Examples of Equipment Not in a Ready Status During October 25, 2017, Emergency Planning Drill, November 7, 2017
- EAL Basis, Emergency Action Level Technical Bases, Revision 7
- EI-6.13, Protective Action Recommendations for Offsite Populations, Revision 24
- Emergency Planning Drill Scenario Package, October 25, 2017
- EN-EP-610, Technical Support Center, (TSC) Operations, Revision 4
- EOP-5, Steam Generator Tube Rupture, Revision 19
- EOP-9, Functional Recovery, Revision 23
- SEP Supplement 1, EAL Wall Charts, Revision 3
- Site Emergency Plan, Revision 29

2RS2 Occupational ALARA Planning and Controls

- EN-RP-105; Radiological Work Permits; Revision 18
- EN-RP-110; ALARA Program; Revision 14
- EN-RP-110-04; Radiation Protection Risk Assessment Process; Revision 7
- Palisades Nuclear Plant Spring 2017 1R25 Refueling Outage Report
- RWP 2017-0433 and Associated ALARA Documents; Refuel Project: Disassembly of the Reactor Head and Associated Work Activities; Various Dates
- RWP 2017-0444 and Associated ALARA Documents; Reactor Head Inspection: Removal/Installation of Control Rod Drive Seal Housing Packages and Removal/Installation of CRDM Drive Motors; Various Dates
- RWP 2017-0454 and Associated ALARA Documents; Steam Generator Primary Side Activities; Various Dates

4OA1 Performance Indicator Verification

- EN-LI-114, Regulatory Performance Indicator Process, Revision 8
- NRC Indicator Occupational Exposure Control Effectiveness (OR01); Various Dates
- NRC Indicator Reactor Coolant System Specific Activity (BI01); Various Dates
- NRC Indicator RETS/ODCM Radiological Effluent Occurrences (PR01); Various Dates
- NRC Performance Indicator Data Sheet, Mitigating Systems Performance Indicator, Emergency AC Power (MS06), 4th Quarter 2016
- NRC Performance Indicator Data Sheet, Mitigating Systems Performance Indicator, Emergency AC Power (MS06), 1st Quarter 2017
- NRC Performance Indicator Data Sheet, Mitigating Systems Performance Indicator, Emergency AC Power (MS06), 2nd Quarter 2017
- NRC Performance Indicator Data Sheet, Mitigating Systems Performance Indicator, Emergency AC Power (MS06), 3rd Quarter 2017
- NRC Performance Indicator Data Sheet, Mitigating Systems Performance Indicator, Cooling Water Support (MS10 CWS-1), 4th Quarter 2016
- NRC Performance Indicator Data Sheet, Mitigating Systems Performance Indicator, Cooling Water Support (MS10 CWS-1), 1st Quarter 2017
- NRC Performance Indicator Data Sheet, Mitigating Systems Performance Indicator, Cooling Water Support (MS10 CWS-1), 2nd Quarter 2017
- NRC Performance Indicator Data Sheet, Mitigating Systems Performance Indicator, Cooling Water Support (MS10 CWS-1), 3rd Quarter 2017
- NRC Performance Indicator Data Sheet, Mitigating Systems Performance Indicator, Cooling Water Support (MS10 CWS-2), 4th Quarter 2016
- NRC Performance Indicator Data Sheet, Mitigating Systems Performance Indicator, Cooling Water Support (MS10 CWS-2), 1st Quarter 2017

- NRC Performance Indicator Data Sheet, Mitigating Systems Performance Indicator, Cooling Water Support (MS10 CWS-2), 2nd Quarter 2017
- NRC Performance Indicator Data Sheet, Mitigating Systems Performance Indicator, Cooling Water Support (MS10 CWS-2), 3rd Quarter 2017
- Palisades Nuclear Plant Mitigating System Performance Index Basis Document, July 12, 2017

4OA2 Problem Identification and Resolution

- 10 CFR 50.54(Q)(3) Evaluation for SEP Revision 29 and OSA Revision 4
- 10 CFR 50.54(Q)(3) Screening for SEP Revision 29 and OSA Revision 4
- CR-PLP-2016-02650, Discrepancies Found During Review of Completed Fire Tours, June 8, 2016
- CR-PLP-2016-02650, Discrepancies Found During Review of Completed Fire Tours, June 8, 2016
- CR-PLP-2016-02873, NIOS Identified: Fire Tour Routes Differ Between Security Officers, June 22, 2016
- CR-PLP-2016-02873, NIOS Identified: Fire Tour Routes Differ Between Security Officers, June 22, 2016
- CR-PLP-2016-05360, Quarterly Groundwater Sampling Results Contain Unexpected Indication in One Monitoring Well, November 8, 2016
- CR-PLP-2016-05450, NIOS Identified: Responses for Closed Corrective Actions CA-22 and CA-23 from CR-PLP-2016-02650 were Modified without Evidence of CARB Approval, November 15, 2016
- CR-PLP-2016-05450, NIOS Identified: Responses for Closed Corrective Actions CA-22 and CA-23 from CR-PLP-2016-02650 were Modified without Evidence of CARB Approval, November 15, 2016
- CR-PLP-2016-05716, Groundwater Sampling was Performed on November 29, 2016, Contained Tritium Values in MW-11 Higher than Previous Values, December 2, 2016
- CR-PLP-2016-05717, Groundwater Sampling was Performed on December 1, 2016, Contained Tritium Values in MW-11 Higher than Previous Values, December 2, 2016
- CR-PLP-2016-05954, Groundwater Monitoring Well 11 was Found to Contain 30,523 pCi/L Tritium on December 13, 2016, December 16, 2016
- CR-PLP-2016-05982, CR Not Generated in a Timely Manner for Identified Adverse Condition, December 19, 2016
- CR-PLP-2017-00605, Continuing Negative Trend in Management Oversight and Lack of Training for Security, February 20, 2017
- CR-PLP-2017-00605, Continuing Negative Trend in Management Oversight and Lack of Training for Security, February 20, 2017
- CR-PLP-2017-03213, Operations Performance Indicator for Component Mispositioning Events Turned Red in June, July 5, 2017
- CR-PLP-2017-03349, An RP Technician Noted that the Manway for T-91 Had a Small Leak at the Gasket Joint, July 13, 2017
- CR-PLP-2017-03430, Smaller Gasket Material was Used, July 18, 2017
- CR-PLP-2017-03446, Component Mispositioning Adverse Trend, July 20, 2017
- CR-PLP-2017-03516, When Giving LMS Credit to the Non-Licensed Operator Initial Class, the Wrong LMS ID was Provided, July 26, 2017
- CR-PLP-2017-03614 EN-DC-128 Review was Not Completed, August 1, 2017
- CR-PLP-2017-04077, SRC Operations Subcommittee Concern: Weaknesses Exist in Some Operations Watch Standing Behaviors, August 24, 2017
- CR-PLP-2017-04214, Results for Tritium in TW-7 Exceed the T-91 ODMI Trigger Point 1 for Tritium, September 13, 2017

- CR-PLP-2017-04346, This CR is Written to Document Tritium Results for TW-7 Sampled on September 21, 2017, September 22, 2017
- CR-PLP-2017-04347, Temporary Modification to Bypass Underground Portion of Pipe, September 22, 2017
- CR-PLP-2017-04375, During the Operations Fleet Assessment, a Gap was Identified where Department Leaders are Not Consistently Ensuring that Operator Fundamentals are Clearly Defined, Taught and Reinforced, September 25, 2017
- CR-PLP-2017-04376, During the Operations Fleet Assessment, a Gap was Identified where Department Leaders are Not Sufficiently Critical of Operator Performance, September 25, 2017
- CR-PLP-2017-04377, During the Operations Fleet Assessment, a Gap was Identified where Previous Actions Developed to Address Proficiency Issues were Not Sufficient, September 25, 2017
- CR-PLP-2017-04386, ODMI Trigger Point #2 has been Exceeded for TW-7, September 25, 2017
- CR-PLP-2017-04628, Task Qualification for Valve and Breaker Operation for the Nuclear Plant Operator Trainees could Not be Verified in LMS, October 12, 2017
- CR-PLP-2017-04637, Students did Not Receive Credit in LMS, October 11, 2017
- CR-PLP-2017-04744, Computer Based Training FCBT-SAF-ESQEW, Electrical Safety for Qualified Worker was Not Completed by Non License Operator Initial Trainees, October 19, 2017
- CR-PLP-2017-04950, 2017 Mid-Cycle Assessment AFI: Operations Shift Managers and Supervisors are Not Sufficiently Critical of Performance and are Inconsistently Enforcing Standards, October 30, 2017
- CR-PLP-2017-05115, During 1-1 EDG Monthly Surveillance Testing, the Handswitch for P-18A, 'A' Fuel Oil Transfer Pump, was Placed in Manual Instead of Auto, November 7, 2017
- CR-PLP-2017-05467, Fire Brigade Qualifications are Linked in LMS, December 1, 2017
- CR-PLP-2017-05505, NRC Identified: Questions whether the Shift Staffing Met the Requirements of the Site Emergency Plan, December 4, 2017
- DRN 17-00501, SEP Revision 29
- DRN 17-00601, FPIP-1 Revision 25/26
- EC 74150, Temporary Modification to Bypass Underground Portion of Pipe from M-18 Oil/Water Separator to T-41 Turbine Building Drain Tank using Above Ground Hose and Accessories, Revision 2
- EN-LI-102, Corrective Action Program, Revisions 27 through 30
- EN-LI-118, Cause Evaluation Process, Revisions 22 through 24
- EN-OP-139, Fire Watch Program, Revision 1 and 2
- EN-OP-139, Fire Watch Program, Revision 1 and 2
- FMA for Tritium in MW-11, November 2016
- FMA for Tritium in TW-7, October 17, 2017
- FMA for Tritium in TW-7, October 2, 2017
- FMA for Tritium in TW-7, October 24, 2017
- FMA for Tritium in TW-7, October 31, 2017
- FMA for Tritium in TW-7, September 26, 2017
- FPIP-1, Fire Protection Plan, Organization and Responsibilities, Revision 26
- FPIP-1, Fire Protection Plan, Organization and Responsibilities, Revision 25
- NIOS Trimester Report 2017-02, June 1, 2017 thru September 29, 2017
- NLOI-18 Training Schedule
- Operations Log Shift Roster, June 1, 2017-October 12, 2017
- Palisades Nuclear Station On-Shift Staffing Analysis, Revisions 3 and 4
- PL-BNEE, P&ID, Logic and E-Print Reading, Revision 10

- PLLP-NLO-ISBD Attendance Roster, August 10, 2017
- PLLP-NLO-ISBD, Station Power Breakers, Revision 6
- PL-N00109, Plant Emergency Notification Training Completion List, October 20, 2017
- PL-PPDD, Limitorque Training for Operators, Revision 2
- SEP, Site Emergency Plan, Revisions 28 and 29
- Shift Staffing August 2017 Spreadsheet
- Shift Staffing July 2017 Spreadsheet
- Shift Staffing June 2017 Spreadsheet
- T-91, Utility Water Storage Tank, Post Maintenance Monitoring Plan, Revision 1
- T-91, Utility Water Storage Tank, Post Maintenance Monitoring Plan, Revision 2
- T-91, Utility Water Storage Tank, Post Maintenance Monitoring Plan, Revision 3
- WO 461420, T-91; Task to Perform Troubleshooting of T-91 and Associated Piping
- WO 485348, M-18; Install Temporary Pipe from M-18 to T-41 per EC 74150

4OA5 Other Activities

- 5-39-R11-391; Show Results of New Evaluation of CCW Vulnerability to HELB; August 22, 1990
- 6-106-R18-1048; FSAR Change Request to Remove Incorrect and Inconsistent Information from the FSAR; November 7, 1994
- 90-1063; FSAR Change Request Regarding CCW Vulnerability to a HELB Inside Containment; July 27, 1990
- 9-243-R19-1228; FSAR Change Request to Correct to As-Build FSAR Section 9.3; May 23, 1996
- 9-246-R19-1251; FSAR Change Request to Revise FSAR Section 9.3.3.1; September 24, 1996
- C-PAL-97-1270; Appendix R Concern With Cross-tie CCW and SWS; September 12, 1997
- CR-PLP-2015-01872; Condition Report - NRC CDBI Questions Regarding Classification of the Component Cooling Water System; May 16, 2015
- CR-PLP-2015-01872; Operability Evaluation – NRC CDBI Questions Regarding Classification of the Component Cooling Water System; May 15, 2015
- CR-PLP-2015-01873; NRC Questions Regarding Classification of CVCS and Response to a Design Basis Earthquake; May 6, 2015
- CR-PLP-2015-05468; NRC CDBI Preliminary Violations Regarding Classification of the CCW System; November 3, 2015
- D-PAL-89-061; Post-Accident Operation of CCW System; June 26, 1990
- D-PAL-89-120; Loss of Instrument Air – CCW System; April 25, 1990
- EA-GWO 7793-01; CCW Piping Inside Containment; Revision 0
- FC-452-2; Revise CCW to Containment Isolation Logic; November 19, 1984
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- GIP-2; Generic Implementation Procedure for Seismic Verification of Nuclear Power Plant Equipment; February 14, 1992
- GL 87-02; Supplement No. 1 to GL 87-02 that Transmits Supplemental Safety Evaluation Report No. 2 on SQUG GIP-2; 1992
- LER 79-041-01; Main Steam Line Break Accident Analysis; October 30, 1979
- LER 80-003-01-1; Update to Licensee Event Report 80-003; Containment Spray; May 30, 1980
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- Letter; Main Steam Line Break With Continued Feedwater Addition – Palisades Plant – IE Bulletin 80-04 – Safety Evaluation Report; April 11, 1984
- Letter; Palisades – Evaluation of SEP Topic VII-3, Systems Required for Safe Shutdown (EICS Matters); December 31, 1981
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LIST OF ACRONYMS USED

AC	Alternating Current
AFW	Auxiliary Feedwater
AFU	Air Filter Unit
ALARA	As-Low-As-Reasonably-Achievable
AOP	Abnormal Operating Procedure
CA	Corrective Action
CAP	Corrective Action Program
CARB	Corrective Action Review Board
CBT	Computer Based Training
CCW	Component Cooling Water
CFR	<i>Code of Federal Regulations</i>
CR	Condition Report
DG	Diesel Generator
EAL	Emergency Action Level
ERO	Emergency Response Organization
ESS-SEQ	Engineered Safeguards System-Sequencer
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
LMS	Learning Management System
M&TE	Maintenance & Test Equipment
MSPI	Mitigating Systems Performance Index
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NIOS	Nuclear Independent Oversight
NPO	Nuclear Plant Operator
NRC	U.S. Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
PI	Performance Indicator
SDP	Significance Determination Process
SEP	Site Emergency Plan
SSC	Structure, System, and Component
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item
WO	Work Order