UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE RD. SUITE 210
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May 2, 2017

EA–17–029

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

SUBJECT: PALISADES NUCLEAR PLANT—NRC INTEGRATED INSPECTION REPORT 05000255/2017001 AND NOTICE OF ENFORCEMENT DISCRETION

Dear Mr. Arnone:

On March 31, 2017, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Palisades Nuclear Plant. On April 27, 2017, the NRC inspectors discussed the results of this inspection with yourself and other members of your staff. The enclosed report represents the results of this inspection.

Based on the results of this inspection, no findings of significance were identified. A licensee-identified violation is listed in Section 4OA7 of this report.

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:
Inspection Report 05000255/2017001

cc: Distribution via LISTSERV®

Letter to Charles Arnone from Eric Duncan dated May 2, 2017

SUBJECT: PALISADES NUCLEAR PLANT—NRC INTEGRATED INSPECTION REPORT 05000255/2017001 AND NOTICE OF ENFORCEMENT DISCRETION

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50–255
License No:	DPR–20
Report No:	05000255/2017001
Licensee:	Entergy Nuclear Operations, Inc.
Facility:	Palisades Nuclear Plant
Location:	Covert, MI
Dates:	January 1 through March 31, 2017
Inspectors:	A. Nguyen, Senior Resident Inspector J. Boettcher, Resident Inspector J. Mancuso, Acting Resident Inspector B. Bartlett, Project Engineer T. Taylor, Resident Inspector, D. C. Cook Nuclear Plant A. Shaikh, Senior Reactor Inspector D. Sargis, Reactor Engineer
Approved by:	E. Duncan, Chief Branch 3 Division of Reactor Projects

Enclosure

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SUMMARY

Inspection Report (IR) 05000255/2017001; 01/01/2017 – 03/31/2017; Palisades Nuclear Plant; Routine Integrated Inspection Report

This report covers a 3–month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. The Nuclear Regulatory Commission's (NRC's) program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG–1649, "Reactor Oversight Process," Revision 6, dated July 2016.

No violations of significance were identified by the inspectors.

A violation of very low safety or security significance or Severity Level IV that was identified by the licensee has been reviewed by the NRC. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program (CAP). This violation and CAP tracking number is listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

The plant operated at or near full power during the inspection period until March 17, 2017, when the unit was taken offline for a forced outage to replace a leaking seal on control rod drive (CRD) mechanism 13. On March 23, 2017, the reactor was taken critical and the plant was synchronized to the grid. The reactor achieved approximately 70 percent power on March 27, 2017, where it remained for the remainder of the inspection period, in preparation for the upcoming refueling outage, 1R25.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Readiness for Impending Adverse Weather Condition – High Wind Conditions

a. Inspection Scope

Since high winds were forecast in the vicinity of the facility for March 8, 2017, the inspectors reviewed the licensee's overall preparations/protection for the expected weather conditions. On March 8, 2017, the inspectors walked down the emergency diesel generators (DGs), service water system (SWS), and auxiliary feedwater (AFW) system, 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 preparation actions to the site's procedures. 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)

.2 Quarterly Partial System Walkdowns

a. Inspection Scope

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

- Right train control room heating, ventilation, and air conditioning system (CRHVAC);
- 1–1 emergency DG;
- 'B' and 'C' charging system trains; and
- 'B' and 'C' containment spray trains.

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 four partial system walkdown samples as defined in IP 71111.04–05.

b. Findings

No findings were identified.

.3 Semi-Annual Complete System Walkdown

a. Inspection Scope

During walkdowns on January 26, February 2, and February 13, 2017, the inspectors performed a complete system alignment inspection of the AFW 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 13B: charging pump rooms, elevation 590';
- Fire Area 10: east engineered safeguards room, elevation 570';
- Fire Area 23: turbine building north, elevation 590';
- Fire Area 2: cable spreading room, elevation 607';
- Fire Area 13G: spent fuel pool heat exchanger room, elevation 590';
- Fire Area 23: turbine building east and west mezzanines, elevations 607' to 612'; and
- Fire Area 23: turbine building south, elevations 584' and 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 the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's CAP. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

1R06 Flooding (71111.06)

.1 Internal Flooding

a. Inspection Scope

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

- AFW pump room, turbine building, and elevation 570'.

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

This inspection constituted one internal flooding sample as defined in IP 71111.06–05.

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

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

a. Inspection Scope

On March 1 and March 15, 2017, the inspectors observed two crews of licensed operators in the plant's simulator during the Annual Licensed Operator Requalification Operating Test. 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, alarm response, and emergency operating procedures;
- timely control board operation and manipulations;
- oversight and direction from supervisors;
- group dynamics involved in crew performance; and
- ability to identify and implement appropriate TS actions and Emergency Plan actions and notifications.

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

This inspection constituted one quarterly licensed operator requalification program simulator sample as defined in IP 71111.11–05 and satisfied the inspection program requirement for the resident inspectors to observe a portion of an in-progress annual requalification operating test during a training cycle in which it was not observed by the NRC during the biennial portion of this IP.

b. Findings

No findings were identified.

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

a. Inspection Scope

On March 17, 2017, the inspectors observed reactor cooldown and shutdown activities in the main control room in preparation for the forced outage to replace the seal on CRD–13. This was an activity that required heightened awareness or was related to increased risk. The inspectors evaluated the following areas:

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

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

This inspection constituted one quarterly licensed operator heightened activity/risk sample as defined in IP 71111.11–05.

b. Findings

No findings were identified.

.3 Resident Inspector Quarterly Observation during Periods of Heightened Activity or Risk (71111.11Q)

a. Inspection Scope

On March 22 and 23, 2017, the inspectors observed reactor startup activities after the forced outage to replace the seal on CRD–13. This was an activity that required heightened awareness or was related to increased risk. The inspectors evaluated the following areas:

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

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

This inspection constituted one quarterly licensed operator heightened activity/risk sample as defined in IP 71111.11–05.

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:

- instrument air system;
- primary coolant system; and
- control room envelope boundary.

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 Title 10 of the *Code of Federal Regulations* (10 CFR) 50.65(b) of the maintenance rule;
- characterizing system reliability issues for performance;

- charging unavailability for performance;
- trending key parameters for condition monitoring;
- ensuring 10 CFR 50.65(a)(1) or (a)(2) classification or re-classification; and
- verifying appropriate performance criteria for structures, systems, and components (SSCs)/functions classified as (a)(2), or appropriate and adequate goals and corrective actions for systems classified as (a)(1).

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

This inspection constituted three quarterly maintenance effectiveness samples as defined in IP 71111.12–05.

b. Findings

No findings were identified.

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

.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:

- planned risk-significant maintenance on the 1–2 DG;
- emergent, elevated risk work on LS–1452, 1–2 DG control level switch, for failure to stop filling the 1–2 DG day tank;
- planned risk-significant work on the ‘B’ AFW pump coincident with troubleshooting activities to locate a ground on the 2400V alternating current (AC) system;
- emergent, elevated risk work on the 1–2 DG for failure to synchronize to its 2400V AC bus during surveillance testing coincident with CV–0554, reheater drain tank control valve, sticking in mid-position;
- emergent, risk significant work on the containment personnel air lock and CV–0601, feedwater heater level control valve;
- emergent, elevated risk work on reactor protection system matrix relay AD3 after it was found degraded during surveillance testing; and
- entry into TS Limiting Condition for Operation (LCO) 3.0.4.b and associated risk assessment for emergent work on CV–0823, ‘A’ component cooling water (CCW) heat exchanger service water outlet valve.

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 seven 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:

- evaluation of the failure of CV–0822, service water temperature control valve, regulator;
- evaluation of leakage past CK–ES3132, ‘C’ safety injection tank check valve;
- past operability evaluations of issues identified during 1–2 DG maintenance window;
- evaluation of foreign material in the 1–1 DG jacket water cooler;
- evaluation of 1–2 DG after inconclusive troubleshooting for failure to synchronize; and
- evaluation of CV–0823, ‘A’ CCW heat exchanger service water outlet valve, open limit switch found unresponsive.

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 the 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 six samples as defined in IP 71111.15–05.

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:

- operability testing of P–66B, ‘B’ high pressure safety injection pump, after oil change;
- 1–2 DG test start and operability testing after jacket water cooler heat exchanger replacement and preventive maintenance (PM) window;
- operability testing of 'C' AFW pump after PM window;
- 1–1 DG test start and operability testing following jacket water cooler heat exchanger replacement;
- operability testing of ‘B’ AFW pump after PM window;
- 1–2 DG test start and operability run after troubleshooting failure to synchronize; and
- control rod exercising of CRD–13 following seal replacement.

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 seven post-maintenance testing samples as defined in IP 71111.19–05.

b. Findings

No findings were identified.

1R20 Outage Activities (71111.20)

.1 Other Outage Activities

a. Inspection Scope

On March 17, 2017, the licensee removed the unit from service for an unplanned maintenance outage to replace the seal on CRD–13 and complete additional maintenance activities. The unit was restarted and synchronized to the electrical grid on March 23, 2017.

The inspectors evaluated the licensee's conduct of outage activities to assess the control of plant configuration and management of shutdown risk. The inspectors reviewed activities to ensure that the licensee considered risk in developing, planning, and implementing the outage schedule. The inspectors observed or reviewed the reactor shutdown and cooldown, outage equipment configuration and risk management, electrical lineups, selected clearances, control and monitoring of decay heat removal, control of containment activities, personnel fatigue management, startup and heat-up activities, and identification and resolution of problems associated with the outage. In addition, the inspectors verified problems associated with the conduct of outage activities were entered into the licensee's CAP with the appropriate characterization and significance.

Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

.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–14B, 'B' service water pump surveillance test (inservice test);
- QI–4, pressurizer low pressure surveillance test (routine);
- QO–1, safety injection actuation test (routine); and
- QI–5, containment high pressure surveillance test (routine).

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

- did preconditioning occur;

- were the effects of the testing adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- were acceptance criteria clearly stated, 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 test equipment 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 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 into 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 three routine surveillance testing samples and one in-service test sample as defined in IP 71111.22, Sections–02 and–05.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on February 8, 2017, to identify any weaknesses or deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the control room simulator,

technical support center, and operations support center to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the 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 71114.06–06.

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 Unplanned Scrams per 7000 Critical Hours

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams per 7000 Critical Hours performance indicator (PI) for the period from the first quarter 2016 through the fourth quarter 2016. 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, condition reports (CRs), event reports, NRC inspection reports (IRs), and reported NRC data from the first quarter 2016 through the fourth quarter 2016 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's condition report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one unplanned scrams per 7000 critical hours sample as defined in IP 71151–05.

b. Findings

No findings were identified.

.2 Unplanned Scrams with Complications

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams with Complications PI for the period from the first quarter 2016 through the fourth quarter 2016. 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, CRs, event reports, NRC IRs, and reported NRC data from the first quarter 2016 through the fourth quarter 2016 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's condition report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index—Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI)—Heat Removal System PI for the period from the first quarter 2016 through the fourth quarter 2016. 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, CRs, event reports, MSPI derivation reports, NRC IRs, and reported NRC data from the first quarter 2016 through the fourth quarter 2016 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 heat removal system 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 corrective action program 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 Annual Follow-Up of Selected Issues: Corrective Actions for Hourly Fire Tour Discrepancies

a. Inspection Scope

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

- CR–PLP–2016–2650, 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 root 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;
- effectiveness of corrective actions taken to preclude repetition; and
- evaluate applicability for operating experience and communicate 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

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 identification of the root and contributing causes to the event and the corrective actions established to address those causes. Specifically, the corrective actions were reviewed to ensure they were appropriate to preclude repetition for the root causes and correct the identified deficiencies of the contributing causes; were being implemented in a timely manner commensurate with safety significance; and were effective in addressing the identified causes. The inspectors also reviewed the extent of condition and extent of cause aspects of the issue, and corrective actions that were implemented to address those aspects.

The licensee determined that the root causes of the issues associated with the conduct of fire tours were: 1) standards for implementation of the fire tours had not been sufficiently developed, which allowed programmatic, training, and organizational gaps to go unnoticed and uncorrected; and 2) other patrols unrelated to fire tours were co-mingled with the fire tours, which resulted in missed checks (a root cause identified during the extent of condition review). Through the review of the root cause evaluation, the inspectors did not identify any gaps in the evaluation process to determine the root causes.

Corrective actions to prevent recurrence for these root causes included revising fleet and station procedures to specifically outline the standards and responsibilities for the conduct of fire tours. Additional corrective actions for the root causes included creating and requiring computer-based and in-person training to the pertinent departments on the standards and responsibilities outlined in the revised procedures and creating checklists that were required to be used in the conduct of the tours. Interim corrective actions added a requirement for security shift leaders to validate the proper conduct of tours by printing out badge reports and confirming that the badge reports matched the completed check lists, ensuring oversight of the patrols/tours as they were being conducted. The inspectors independently reviewed the licensee's revised procedures, new training, and documentation of completed fire tours to determine if the corrective actions were appropriately addressing the identified causes and that the patrols/tours were being conducted as required. The inspectors shared minor observations with the licensee related to these reviews. The licensee also documented in their CAP a few instances where human performance issues led to minor gaps in the conduct of the tours. The licensee planned to incorporate this information into future effectiveness reviews.

The licensee also determined that there were two contributing causes for the discrepant fire tours. The first contributing cause identified that security management did not provide sufficient oversight for the conduct of fire tours, which led to the propagation of incorrect behaviors. The second contributing cause determined that the Palisades staff did not appropriately evaluate operating experience from a similar issue at another plant identified in 2014, which would have enabled them to identify vulnerabilities within their

own program. The inspectors did not find any gaps in the licensee's root cause evaluation process for identifying these contributing causes and agreed that there was a missed opportunity for the station to have identified issues within their fire tour program sooner through a more thorough review of the related operating experience in 2014. The licensee was aware of and did review the operating experience when the issue first occurred; however, the review was not sufficiently in-depth or probing in nature to identify discrepancies at Palisades.

Corrective actions for these contributing causes included creating behavioral observation check sheets for supervisors to use while performing in-field observations of the tours, requiring supervisors to complete a specified number of observations over a six month period, and briefing security management on the lessons learned from the ineffective operating experience review. The inspectors performed an independent review of the completed behavioral observation check sheets to ensure supervisors were performing oversight responsibilities as required and that the observations yielded a critical review of personnel performance to identify incorrect behaviors and address them appropriately. While the observations were being conducted as required, the inspectors noted a lack of critical feedback related to the conduct of the tours. This was discussed with the licensee as a potential weakness in the process which could aid in identifying behavioral issues before more significant, programmatic issues arose.

At the end of this inspection period, effectiveness reviews had not yet been completed to ensure that the corrective actions for the root causes and contributing causes adequately addressed the identified gaps discussed above. The inspectors planned to review these effectiveness review results after they were completed. The licensee continued to have some interim corrective actions in place, as well as corrective actions that had yet to be implemented. The inspectors planned to continue their review of the implementation and effectiveness of these actions in the future.

c. Findings

No findings were identified.

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

.1 (Closed) Licensee Event Report 05000255/2010003–00; Unanalyzed Condition Due to Non-Compliance with 10 CFR 50 Appendix R

On October 1, 2010, during a corrective action program extent of condition review, a postulated Appendix R fire scenario was identified in three fire areas that could potentially result in the loss of safety-related 2400 volt alternating current (VAC) bus 1C and/or 1D, with subsequent loss of equipment credited for Appendix R compliance to support safe shutdown in the event of such a fire. 10 CFR 50, Appendix R, Section III.G.2 requires, in part, that where cables or equipment of redundant trains of systems necessary to achieve and maintain hot shutdown conditions are located within the same fire area outside of primary containment, one means of ensuring that one of the redundant trains is free of fire damage shall be provided. At the time that the licensee identified this non-compliance in 2010, Palisades was required to meet the requirements of 10 CFR 50, Appendix R.

The licensee documented the non-compliant manual actions in their CAP and implemented fire watches as a compensatory measure. Enforcement aspects of this

Licensee Event Report are discussed in Section 4OA7. Documents reviewed as part of this inspection are listed in the Attachment. This Licensee Event Report is closed.

This event follow-up review constituted one sample as defined in Inspection Procedure 71153–05.

4OA5 Other Activities

.1 Institute of Nuclear Power Operations Plant Assessment Report Review

a. Inspection Scope

The inspectors reviewed the final report for the World Association of Nuclear Operators Peer Review conducted in July 2016. The inspectors reviewed the report to ensure that issues identified were consistent with the NRC perspectives of licensee performance and to determine if any significant safety issues were identified that required further NRC follow-up.

b. Findings

No findings were identified.

.2 (Closed) NRC Temporary Instruction 2515/192, Inspection of the Licensee's Interim Compensatory Measures Associated with the Open Phase Condition Design Vulnerabilities in Electric Power Systems

a. Inspection Scope

The objective of this performance-based Temporary Instruction (TI) was to verify implementation of interim compensatory measures associated with an open phase condition (OPC) design vulnerability in electric power systems for operating reactors. The inspection determined whether the licensee had implemented the following interim compensatory measures. These compensatory measures were to remain in place until permanent automatic detection and protection schemes were installed and declared operable for the OPC design vulnerability. The inspectors verified the following:

- The licensee identified and discussed with plant staff the lessons learned from the OPC events at the US operating plants including the Byron Station OPC event and its consequences. This included conducting operator training for promptly diagnosing, recognizing consequences, and responding to an OPC event.

- The licensee updated plant operating procedures to help operators promptly diagnose and respond to OPC events on offsite power sources credited for safe shutdown of the plant.

- The licensee established and implemented periodic walkdown activities to inspect switchyard equipment such as insulators, disconnect switches, and transmission line and transformer connections associated with the offsite power circuits to detect a visible OPC.

- The licensee ensured that routine maintenance and testing activities on switchyard components have been implemented and maintained. As part of the maintenance

and testing activities, the licensee assessed and managed plant risk in accordance with 10 CFR 50.65(a)(4) requirements.

b. Findings and Observations

The inspectors reviewed the interim corrective actions that the licensee had implemented since the Byron Station OPC event, as described in a letter to the NRC dated January 30, 2014, and verified those actions remained in place. In general, the inspectors determined that the corrective actions described in the letter were being appropriately implemented. The inspectors noted one observation during the review of the corrective actions. In the letter, the licensee stated that bus transfer procedures were verified to ensure voltages were checked prior to bus transfers and after transfers were completed. The inspectors reviewed these procedures and observed that while the procedures required a check of bus voltages, they did not require a check of voltages across all phases. The inspectors discussed this observation with the licensee. The licensee entered this observation into their CAP and planned to evaluate the current procedures for bus transfers.

No findings of significance were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On April 27, 2017, 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.

4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements. This issue met the criteria of the NRC Enforcement Policy for being dispositioned as a Non-Cited Violation (NCV) and an issue warranting enforcement discretion (EA–17–029), respectively.

The licensee identified a finding of very low safety significance (Green) and an associated NCV of 10 CFR 50, Appendix R, Section III.G.2, which requires, in part, that where cables or equipment of redundant trains of systems necessary to achieve and maintain hot shutdown conditions are located within the same fire area outside of primary containment, one means of ensuring that one of the redundant trains is free of fire damage shall be provided. Contrary to the above, as of October 1, 2010, the licensee failed to ensure that one of the redundant trains was free of fire damage in areas where cables or equipment of redundant trains of systems necessary to achieve and maintain hot shutdown conditions are located within the same fire area outside of primary containment. Specifically, the licensee failed to analyze a fire scenario in the 1–C switchgear room, screen-house room, and component cooling water pump room that could potentially damage the control cable before the load cable, and therefore result in the loss of safety-related 2400 volt alternating current (VAC) bus 1C and/or 1D, with subsequent loss of equipment credited for Appendix R compliance to support safe shutdown in the event of such a fire. The licensee's failure to analyze an Appendix R fire scenario for the three fire areas described above was a performance deficiency.

The performance deficiency was more-than-minor because it was associated with the Mitigating Systems cornerstone attribute of Protection Against External Factors (Fire) and adversely affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e., core damage). The finding was determined to be of very low safety significance (Green) because it did not impact the licensee's ability to reach hot shutdown because operator manual actions would have allowed operators to shut down the plant following a fire.

The licensee identified this issue during the transition to NFPA 805, entered the issue into their CAP as CR–PLP–2010–04255, and implemented compensatory measures, including fire watches. The violation was not willful and routine licensee efforts, such as normal surveillance or quality assurance activities, were not likely to have previously identified the violation due to the specific sequence of fire cable damage required for such an Appendix R fire scenario. As a result, the inspectors concluded that the violation met all four criteria for exercising enforcement discretion established by Section 9.1 of the NRC's Enforcement Policy Regarding Enforcement Discretion for Certain Fire Protection Issues; therefore, the NRC is exercising enforcement discretion to not cite this violation.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

C. Arnone, Site Vice President
D. Corbin, General Manager Plant Operations
T. Mulford, Operations Manager
B. Baker, Operations Manager – Shift
J. Borah, Engineering Manager, Systems and Components
D. Lucy, Production Manager
T. Davis, Regulatory Assurance
B. Dotson, Regulatory Assurance
J. Erickson, 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
N. DeMaster, Outage Manager
D. Malone, Emergency Planning Manager
W. Nelson, Training Manager
D. Nestle, Radiation Protection Manager
K. O'Connor, Engineering Manager, Design and Programs
C. Plachta, Nuclear Independent Oversight Manager
P. Russell, Site Engineering Director
M. Schultheis, Performance Improvement Manager
M. Soja, Chemistry Manager
J. Tharp, Security Manager

U.S. Nuclear Regulatory Commission

E. Duncan, Chief, Reactor Projects Branch 3

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Closed

05000255/2010003–00	LER	Unanalyzed Condition Due to Non-Compliance with 10 CFR 50 Appendix R (4OA3.1)

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

- Admin 4.02, Control of Equipment, Revision 77
- AOP-38, Acts of Nature, Revisions 7 and 8
- CR-PLP-2016-03764, Received a Storm Warning from Murray and Trettel/Weather Command Provided on a New Form that was Not in Alignment with AOP-38 or Admin. 4.02, August 12, 2016
- CR-PLP-2017-00477, Evaluate the Need to Revise AOP-38, February 8, 2017
- EN-FAP-EP-010, Severe Weather Response, Revision 5
- Operations Narrative Logs, March 7 and March 8, 2017

1R04 Equipment Alignment

- 14-PAL-0127, Evaluation/Screening of Boric Acid Leakage for P-54C
- 14-PAL-0158, Evaluation/Screening of Boric Acid Leakage for P-54C
- 14-PAL-0222, Evaluation/Screening of Boric Acid Leakage for MV-ES3206
- 15-PAL-0004, Evaluation/Screening of Boric Acid Leakage for CV-3001
- 16-PAL-0036, Evaluation/Screening of Boric Acid Leakage for MV-ES3206
- ARP-7, Auxiliary Systems Scheme EK-11 (C-13), Revision 99
- CR-PLP-2015-05090, Nitrogen Station #3B was Indicating 94 psig which is High Outside the Preferred Band of 77-86 psig, October 16, 2015
- CR-PLP-2015-05224, Check Valve CK-N2/459 is Leaking by, October 20, 2015
- CR-PLP-2016-00277, Received EK-0238, Control Room Heating, Ventilation, and Air Conditioning (CRHVAC) Filter High Differential Pressure, 6 Times in Approximately 12 Hours, January 15, 2016
- CR-PLP-2016-00700, Torque Amplifying Device was Required to Move Valve MV-MS153A, February 8, 2016
- CR-PLP-2016-00733, Six Out of Twelve Bolts were Loose on the Inlet Flange to CV-0598, DG Turbine Driver Overspeed Trip, February 10, 2016
- CR-PLP-2016-01277, Alarm EK-0238, CRHVAC Filter High Differential Pressure, Came in Several Times, March 13, 2016
- CR-PLP-2016-01600, Severity Level 2 Air Leak on Compression Union Directly Downstream of MV-CA385, April 1, 2016
- CR-PLP-2016-02634, On VC-11, Corrosion has Degraded 5 Associated Flanges and the Attached Critical Service Water Piping, June 8, 2016
- CR-PLP-2016-02656, Discovered a Freon Leak on the Packing for MV-VA621, Freon Inlet to VC-11 Condenser, June 9, 2016
- CR-PLP-2016-02926, Level 2 Oil Leak from MO-0754, Auxiliary Feedwater to ‘A’ Steam Generator (S/G) Isolation, February 26, 2016
- CR-PLP-2016-03353, Received EK-0249, Control Room Low Differential Pressure, which Immediately Cleared, July 21, 2016
- CR-PLP-2016-03818, Found CK-FW743, Auxiliary Feedwater Pump P-8B Discharge Check Valve, Leaking from the Body to Bonnet Flange, August 16, 2016

- CR-PLP-2016-04054, Air Leaking from the Bottom Port ITT Glow Control Box for CV-0736, P-8C Flow Control to 'B' S/G Bypass, August 29, 2016
- CR-PLP-2016-04306, 'B' AFW Pump Inboard Pump Bearing Bubbler is Cocked to the Left Approximately 15 Degrees, September 13, 2016
- CR-PLP-2017-00255, A Nuclear Plant Operator on Rounds During Day Shift was Unable to Open Door-15, Mechanical Equipment Room Door, January 21, 2017
- CR-PLP-2017-00257, Swapped to 'A' Train CRHVAC In-Service per Shift Manager Direction due to Operating Issues with Door-15, January 21, 2017
- CR-PLP-2017-00322, Small Cooling Water Leak Downstream of MV-FW279, January 26, 2017
- CR-PLP-2017-00951, NRC Identified: During Review of the Boric Acid Corrosion Control Program (BACCP) a Discrepancy was Found, March 15, 2017
- DBD-1.03, Auxiliary Feedwater System, Revision 9
- DBD-5.01, Diesel Engine and Auxiliary Systems, Revision 7
- DBD-5.03, Emergency Diesel Generator Performance Criteria, Revision 9
- CR-PLP-2016-02587, Discovered DPI-1671, Air Handling Unit, V-95, Differential Pressure Indicator, Inputs Appear to be Reversed, June 6, 2016
- EN-DC-319, Boric Acid Corrosion Control Program (BACCP), Revision 11
- M-203, P&ID Safety Injection, Containment Spray and Shutdown Cooling System, Sheet 1, Revision 48
- M-203, P&ID Safety Injection, Containment Spray and Shutdown Cooling System, Sheet 2, Revision 28
- M-204, P&ID Safety Injection Containment Spray and Shutdown Cooling System, Sheet 1, Revision 87
- M-204, P&ID Safety Injection Containment Spray, Sheet 1B, Revision 41
- M-205, P&ID Main Steam and Auxiliary Turbine Systems, Sheet 2, Revision 71
- M-207, P&ID Auxiliary Feedwater System, Sheet 2, Revision 41
- M-208, P&ID Service Water System, Sheet 1B, Revision 40
- M-218, P&ID Heating, Ventilation & Air Conditioning Control Room, Sheet 7, Revision 16
- M-218, P&ID Heating, Ventilation & Air Conditioning Control Room, Sheet 6, Revision 16
- M-220, P&ID Make-Up Domestic Water & Chemical Injection Systems, Sheet 1, Revision 102
- QO-16, Inservice Test Procedure – Containment Spray Pumps, Revision 38
- SOP-12, Feedwater System, Revision 76
- SOP-19, Instrument Air System, Revision 68
- SOP-22, Emergency Diesel Generators, Revision 71
- SOP-24, Ventilation and Air Conditioning System, Revision 71
- SOP-2B, Attachment 2, Checklist CL 2.1, CVC System Checklist, Revision 52
- SOP-3, Safety Injection and Shutdown Cooling System, Revision 105
- SOP-4, Containment Spray System, Revision 27
- VEN-M107, Safety Injection Containment Spray and Shutdown Cooling System, Sheet 2281, Revision 10
- VEN-M107, Engineered Safeguard Pump Suction, Sheet 2290, Revision 3
- WO 427977, PCV-2274; Nitrogen Station #2 Reading Out of Specification
- WO 444125, MV-CA385; Air Leak on Compression Union Downstream of Valve
- WO 450244, DPI-1671; Correct Inputs which are Reversed
- WO 455575, P-8B; Pump Bearing Bubbler is Cocked

<u>1R05 Fire Protection</u>

- Admin 4.02, Attachment 8, Maintenance Rule 10 CFR 50.65(a)(4) Fire Risk Management Actions (RMAs), Revision 76

- AOP Supplement 1, Fire Area Response Strategies, Revision 0
- AOP-40, Fire Which Threatens Safety-Related Equipment, Revision 2
- CR-PLP-2016-02885, Review of Confirmatory Order and Incident Reports Resulting from NRC Investigation of Fire Watch Procedures at Waterford, June 22, 2016
- CR-PLP-2016-05983, P-41, Diesel Fire Pump, Out of Service Greater than Seven Days, December 19, 2016
- CR-PLP-2017-00166, Transient Combustible Evaluation (TCE) 17-004 Did Not Have Wet-Dry Vacuum on the Material List for the 1-2 DG Maintenance Window, January 16, 2017
- DBD-7.10, NFPA 805 Fire Protection Program, Revision 0
- EA-FPP-03-001, Analysis of Combustible Loading at Palisades Nuclear Plant, Revision 3
- EM-09-24, Service Water and Fire Protection Inspection Program, Revision 3
- EN-DC-161, Control of Combustibles, Revisions 15 and 16
- FPIP-4, Fire Protection Systems and Fire Protection Equipment, Revision 37
- Operations Narrative Logs, January 16, 2017
- Pre-Fire Plan 10, East Engineered Safeguards Room, Elevation 570' & 579'
- Pre-Fire Plan 13A, Main Corridor – North, Elevation 590'
- Pre-Fire Plan 13B, Charging Pumps Rooms, Elevation 590'
- Pre-Fire Plan 2, Cable Spreading Room, Elevation 607'-6"
- Pre-Fire Plan 23, Turbine Building – North, Elevation 590'
- Pre-Fire Plan 23, Turbine Building – South, Elevation 580', 585', and 590'
- Pre-Fire Plan 23, Turbine Building, Elevation 607' to 612'

1R06 Flooding

- CR-PLP-2016-02659, CK-RW421, AFW Pump Room Backwater Valve, is Exhibiting Some Amount of Back-Leakage into the Auxiliary Feedwater Room, June 9, 2016
- CR-PLP-2016-02811, CK-FW743, 'B' AFW Pump Discharge Check Valve, has a Severity Level 3 Leak of 14 Drops per Minute when 'A' AFW Pump is Running, June 17, 2016
- CR-PLP-2016-05936, Control of Non-Conforming Part CK-RW421, AFW Pump Room Backwater Valve, for Inspection, December 15, 2016
- DBD-7.08, Plant Protection Against Flooding, Revision 6

1R11 Licensed Operator Requalification Program

- CR-PLP-2017-00849, Individual Not Signed-On to Exam Security Agreement Entered Secure Examination Area, March 8, 2017
- CR-PLP-2017-00984, Breaker 252-101, Station Power Transformer 1-1 Incoming Breaker, Green (Open) Indicating Light Did Not Illuminate After Opening, March 17, 2017
- CR-PLP-2017-00986, White Spring Charged Light for Breaker 252-402, Startup Transformer 1-3 to Bus 1G, was Not Lit in the Control Room, March 17, 2017
- CR-PLP-2017-00988, CRD-1 Green Matrix Indication Did Not Illuminate After the Reactor was Tripped for the Forced Outage, March 17, 2017
- CR-PLP-2017-01131, Main Generator Field Breaker 341 Failed to Close, March 23, 2017
- GOP-3, Mode 3 ≥ 525°F to Mode 2, Revision 32
- GOP-8, Power Reduction and Plant Shutdown to Mode 2 or Mode 3 ≥ 525°F, Revision 36
- PO-2, PCS Heatup/Cooldown Operations, Revision 7
- Simulator Exam Scenario (SES) - 101, Revision 4
- SES-115, Revision 4
- SES-213, Revision 1
- SES-110, Revision 5
- SOP-6, Reactor Control System, Revision 35

- SOP-8, Main Turbine and Generating Systems, Revision 106

1R12 Maintenance Effectiveness

- CR-PLP-2011-03777, Instrument Air System has Exceeded it Performance Criteria, August 2, 2011
- CR-PLP-2014-04040, Instrument Air Compressor C-2A Failed to Start, August 10, 2014
- CR-PLP-2014-04958, Instrument Air Compressor C-2A Failed to Unload and Tripped on Motor Overload, October 12, 2014
- CR-PLP-2015-0000002007, Door-15 Lube and General Inspection Found Flange Bushing Excessively Worn and in Need of Replacement, May 14, 2015
- CR-PLP-2015-00125, Door-15, Equipment Room Missile Shield/Radiation's Barrel Lock has Come Apart, January 8, 2015
- CR-PLP-2015-00362, During Weekly Testing, Door-15, Equipment Room Missile Shield/Radiation, the Core Lock Failed in the Locked Position, January 22, 2015
- CR-PLP-2015-00415, Door 15 (Equipment Room Missile Shield/Radiation) was Found Closed but Not Latched Upon Security Alarm Response, January 26, 2015
- CR-PLP-2015-00725, It Appears the Door-15, Equipment Room Missile Shield/Radiation is Frozen Shut Due to the Current Environmental Conditions, February 15, 2015
- CR-PLP-2015-00737, Bottom East Corner of Door Seal Missing on Door-15, Equipment Room Missile Shield/Radiation, February 15, 2016
- CR-PLP-2015-00794, Operator Got Locked in Control Room Heating, Ventilation and Air Conditioning Room for Approximately 30 Minutes, Door-15 Froze Shut, February 19, 2015
- CR-PLP-2015-01923, Instrument Air Compressor C-2B Failed to Start, May 10, 2015
- CR-PLP-2015-02042, While Attempting to Change a Failed Core Lock on Door-15 (Equipment Room Missile Shield/Radiation) the Core Would Not Release from the Door, May 18, 2015
- CR-PLP-2015-02047, The Lower Section of the Seal on Door 15 is Protruding/Not Attracted to Door, May 18, 2015
- CR-PLP-2015-06157, Administrative Condition Report to Initiate Work Request for Mechanical Maintenance to Remove the Core Lock from Security Door 15, December 14, 2015
- CR-PLP-2016-00202, Operator on Rounds Found Door-15 Equipment Room Missile Shield/Radiation, to be Frozen Shut, January 12, 2016
- CR-PLP-2016-01314, Instrument Air Compressor C-2C Tripped on Motor Overload, March 15, 2016
- CR-PLP-2016-01442, Door-15 (Equipment Room Missile Shield/Radiation) Will Not Close, Handwheel Will Not Turn, Door Dogs Will Not Retract, March 24, 2016
- CR-PLP-2016-01468, During Repair of Door-15, Equipment Room Missile Shield/Radiation, We Found the 2 Gears that Operate the Dogs In and Out to be Well Worn, Also the Bushings, March 24, 2016
- CR-PLP-2016-01493, Door-15, Control Room Heating, Ventilation and Air Conditioning Door, Latching Mechanism Failed to Unlock the Door, March 27, 2016
- CR-PLP-2016-01523, Instrument Air System is Near (a)(1) Maintenance Rule Status, March 29, 2016
- CR-PLP-2016-03222, Work on Door-15 was Delayed Due to Discrepancies in the Work Steps, July 14, 2016
- CR-PLP-2016-03244, A Site-Fabricated Device was Used to Raise the Lower Block of the Upper Hinge of Door 15, July 15, 2016
- CR-PLP-2016-03258, Instrument Air Compressor C-2C Failed to Start, July 17, 2016
- CR-PLP-2016-03543 CA-03, Maintenance Rule (a)(1) Evaluation of the Instrument Air System (CAS-IAS), September 13, 2016

- CR-PLP-2016-03543, Instrument Air System has Exceeded Maintenance Rule Performance Criteria, August 1, 2016
- CR-PLP-2016-05320, Door-15 Equipment Room Missile Shield Door Tamper Switch on the Active Leaf is Broken, November 7, 2016
- CR-PLP-2016-05322, During Maintenance, Door-15 Equipment Room Missile Shield Door the Mounting Bracket for a Small Servo Motor Found to be Broken, November 7, 2016
- CR-PLP-2016-05336, During 6 Month Preventative Maintenance of Door-15 (Equipment Room Missile Shield/Radiation) it was Discovered After Removal of Inner Door Panel that the Inactive Leaf was Mechanically Inoperable, November 7, 2016
- CR-PLP-2016-05944, Security Shift Captain Notified Shift Manager that Door-15, Equipment Room Missile Shield/Radiation, was Frozen Closed, December 15, 2016
- CR-PLP-2016-05953, Door-15, Equipment Room Missile Shield/Radiation, Would Not Close and Latch Fully to Reset the Door Due to a Small Amount of Ice Buildup, December 16, 2016
- CR-PLP-2016-05999, Emergency Latch was Broken on Door-15, Equipment Room Missile Shield/Radiation, December 19, 2016
- CR-PLP-2016-06071, Instrument Air Compressor C-2A Tripped, December 28, 2016
- CR-PLP-2017-00126, Equipment Room Missile Shield/Radiations (Door 15) Emergency Egress Latch is Not Operational, January 12, 2017
- CR-PLP-2017-00255, Day Shift Nuclear Plant Operator on Rounds was Unable to Open Door-15, January 21, 2017
- CR-PLP-2017-00502, During Vital Area Patrol, Security Office was Stuck Inside Door-15, Equipment Missile Shield/Radiation, February 10, 2017
- DBD-2.04, Primary Coolant System, Revision 8
- Door-15, Door-15, Equipment Room Missile Shield/Radiation, is Not Stopping when Operated in the Open Direction, March 14, 2016
- DR-PLP-2017-00626, Mechanical Equipment Door-15 was Very Hard to Get Open, February 21, 2017
- EN-DC-203, Maintenance Rule Program, Revision 3
- EN-DC-204, Maintenance Rule Scope and Basis, Revision 4
- EN-DC-205, Maintenance Rule Monitoring, Revision 5
- EN-DC-206, Maintenance Rule (a)(1) Process, Revision 3
- EN-DC-207, Maintenance Rule Periodic Assessment, Revision 3
- EN-DC-345, Critical Component Failure Determination, Revision 3
- PLP-RPT-12-00026, EGAD-EP-10 Palisades Maintenance Rule Scoping Document, Revision 0
- System Health Report: Instrument Air System, 4th Quarter 2016
- System Health Report: Primary Coolant System, 4th Quarter 2016
- WT-WTPLP-2014-0264, Proposed Maintenance Rule Performance Indicator / Criteria for the Instrument Air System, April 24, 2015

<u>1R13 Maintenance Risk Assessments and Emergent Work Control</u>

- 1F2501CS, Control Rod Drive-13 & P-50A Cooler Leak, March 20, 2017
- Admin 4.02, Attachment 3, Risk Management and Monitoring, Revision 77
- Admin 4.02, Attachment 3, Risk Management and Risk Monitoring, Revision 76
- Admin 4.02, Control of Equipment, Revision 77
- ARP-1, Turbine Condenser and Feedwater Scheme EK-01, Revision 79
- ARP-19, Start-Up Transformer 1-2, EK-X4 and Open Phase Detection, Revision 10
- ARP-3, Electrical Auxiliaries and Diesel Generator Switch EK-05, Revision 78
- ARP-33, Auxiliary Systems, Scheme EK-02, Revision 26

- CR-PLP-2013-02764, During Performance of MO-7A-2, Emergency Diesel Generator 1-2 Surveillance Test, Received Alarm EK-0560, Diesel Generator Day Tank T-25B HI-LO level Unexpectedly, June 24, 2013
- CR-PLP-2013-04545, Received Unexpected Alarm EK-0560, Diesel Generator Day Tank T-25B Hi-LO Level, October 31, 2013
- CR-PLP-2015-02053,During Performance of MO-7A-2 Emergency Diesel Generator 1-2, Attachment 4, Fuel Oil Transfer Pump P-18B Test, Step 17.0 to Realign P-18A Handswitches to AUTO, P-18A Started to Fill T-25B 1-2 Diesel Generator Day Tank, May 18, 2015
- CR-PLP-2016-03095, CV-0601, Feedwater Heater E-6A Level Control has a Severity Level 2 Packing Leak, July 5, 2016
- CR-PLP-2016-04435, EK-0555, Diesel Generator Breaker 152-213 Trip, While Attempting to Parallel K-6B, Emergency Diesel Generator 1-2 to EA-12, Bus ID (2400 Volt), September 20, 2016
- CR-PLP-2016-04592, CV-0601, Feedwater Heater E-6A Level Control has a Severity Level 3 Packing Leak, September 28, 2016
- CR-PLP-2016-04940, CV-0601, Feedwater Heater E-6A Level Control has a Packing Leak, October 16, 2016
- CR-PLP-2016-05911CV-0601, Feedwater Heater E-6A Level Control Packing has No Adjustment Left and is Teaming Fairly Heavily Out of the Packing, December 14, 2016
- CR-PLP-2017-00162, 1-2 Diesel Generator Tagging Sequence Causes Work Delays, January 16, 2017
- CR-PLP-2017-00175, Emergency Diesel Generator 1-2, Conflicts Between a Preliminary Investigatory Tagout and the Personnel Protective Tagout Resulted in Exceeding the Scheduled Tagout Duration Delaying the Start of the Maintenance Window, January 16, 2017
- CR-PLP-2017-00180, During Performance of WO 52641739-01Bore Scope Being Used to Inspect Cylinders was Unable to Maneuver Appropriately to View Valves and Seats, January 16, 2017
- CR-PLP-2017-00232, Improper Storage of a Step Ladder when Not in Use in a Seismic Area, January 18, 2017
- CR-PLP-2017-00233, EK-560, Diesel Generator Day Tank T-25B Hi-Lo level, Alarm Unexpected, January 19, 2017
- CR-PLP-2017-00243, Switch Cover is Stressing the Internal Switch Assembly on LS-1453 Fuel Oil Transfer Pump Start Switch, January 19, 2017
- CR-PLP-2017-00258, Received Alarms EK-0518, 2400 Volt Bust 1C, 1D, and/or 1E Ground, and EK-0333, Switchyard 125 Volt DC or 240 AC Trouble at 0738 and Again at 0752, January 22, 2017
- CR-PLP-2017-00325, Entered AOP-32, Loss of Containment Integrity, Due to Excessive Leakage on Inner Door of MZ-19, Personnel Air Lock During DWO-13, January 27, 2017
- CR-PLP-2017-00327, MZ-19, Personnel Air Lock Inner Door Leakage was 6,800 sccm with an Acceptance Criteria of 3,474 sccm, January 27, 107
- CR-PLP-2017-00346, While Performing WO 434124-01 Manipulating Inner Door Seals on MZ-19, Found the Seal to Not have Enough Contact to Door for Correct Isolation, January 27, 2017
- CR-PLP-2017-00349, Due to the Rapid Degradation of Packing Leakage on CV-0601, Recommend Engineering and Maintenance Evaluate the Need to Establish a Regular Interval for Team, Inc. to Reinject Packing, January 27, 2017
- CR-PLP-2017-00473, Received Alarm EK-0518, 2400V Bus Ground Alarm, Three Times in the Space of 20 Minutes, February 7, 2017
- CR-PLP-2017-00538, P-8A, Auxiliary Feedwater Pump was Protected with Caution Barriers and Not Protected Train Sign Barriers, February 14, 2017

- CR-PLP-2017-00593, Local Indication at CV-0554, Reheater Drain Tank T-4B Brain to HTR E-6B, Indicates that this Valve is Stuck at About 30% Open,, February 18, 2017
- CR-PLP-2017-00597, Day Shift Reading on N2 Bottle was 1425 psig and N2 Pressure was 3 psig. Currently the N2 Bottle Indicates 0 psig, February 19, 2017
- CR-PLP-2017-00606, Failed to Clear as Expected After Placing Right Channel Containment Hydrogen Monitoring in Service per SOP-38 for Electrical Maintenance, February 20, 2017
- CR-PLP-2017-00609, Received Alarm EK-0555, Diesel Generator Breaker 152-213 Trip, Unexpectedly, February 20, 2017
- CR-PLP-2017-00630, Door Gasket Seal Appears to be Missing from the C-04 Panel Entry Door (Hinge Side) in the Control Room, February 21, 2017
- CR-PLP-2017-00634, Swapped to 'A' Train CRHVAC I/S per Standard Operating Procedure 24 Direction for MO-33B Preparations a VC-11, Control Room HVAC Refrigeration Condensing Unit, Did Not Automatically Start in Auto as Expected Following the Swap, February 22, 2017
- CR-PLP-2017-00635, During Resistance Reading Checks of Control Switch 152-213CS (D/G 1-2 to Bus 1D Control Switch) in C-04 Panel Control Room per WO 468133-03 Unexpected Readings Were Found, February 22, 2017
- CR-PLP-2017-00837, During Performance of QI-3 per Work Order 52732156-01, it was Noticed During the Clutch Power Trip Circuit Test of the AD Matrix that Relay 3 had a Slow Response Time, March 8, 2017
- CR-PLP-2017-01078, Appearance of Some Type of Failure in the Air Regulator on CV-0823, Component Cooling Water Heat Exchanger E-54A Service Water Outlet, March 21, 2017
- CR-PLP-2017-01094, Minor Air Leak at Connection Fitting to Input into SV-0826 (Solenoid Valve for CV-0826), March 21, 2017
- CR-PLP-2017-01095, Proper Place Keeping was Not Used, March 21, 2017
- CR-PLP-2017-01121, POS-0823A (Open Limit Switch for CV-08230) is Not Functioning, March 22, 2017
- Daily Plant Status Report, Palisades, Tuesday, February 21, 2017
- DBD-1.02, Service Water System, Revision 9
- DBD-2.05, Reactor Protective System Safety Injection Signal Anticipated Transient Without SCRAM, Revision 7
- DWO-13, LLRT – Local Leak Rate Tests for Inner and Outer Personnel Air Lock Door Seals, Revision 28
- E-1, Single Line Meter and Relay Diagram, Sheet 1, Revision 14
- E-139, Schematic Diagram, Diesel Generator Breaker (152-213) Sheet 1A, Revision 4
- E-178, Schematic Diagram, Diesel Oil Transfer Pumps, Sheet 1, Revision 22
- EC-62767, Risk Management and Mitigation Actions, It is Recommended that Door-141 Not be Blocked Open for More than 14 Days, Revision 9
- EC-68692, Temporary Packing Leak Repair at High Pressure Feedwater Heater (E-6A) Level Control Valve CV-0601 (Employing Injectable Packing Not Sealant), Revision 1
- EC-69245, LS-1453; Change Switch Cover Configuration, Revision 0
- EC-70591, Risk Assessment per Technical Specification Limiting Condition for Operation, 3.0.4.b for Mode 4 to Mode 3 Transition with Inoperable CV-0823 During 1F2501CS, Revision 0
- EI-17, Compensating Measures for OOS ELA Equipment and Listing of Non-EAL Equipment Important for Emergency Preparedness, Revision 6
- EN-DC-205, Functional Failure Determination Form for CR-PLP-2013-04545, Revision 4
- EN-FAP-WM-002, Critical Evolutions, Revision 4
- EN-IS-124, Job Safety Hazards Analysis, Revision 4
- EN-LI-118-08, Attachment 9.1, Failure Mode Analysis Worksheet, Revision 2
- EN-LI-118-08, Failure Modes Analysis, Revision 2

- EN-MA-125, Troubleshooting Control of Maintenance Activities
- EN-OP-115, Operations Log, February 13, 2017
- EN-OP-119, Protected Equipment Postings, Revision 8
- EN-WM-104, On Line Risk Assessment, Revision 15
- M-205, Piping & Instrument Diagram, Main Steam and Auxiliary Turbine Systems, Sheet 1A, Revision 41
- Operations Log, Thursday, January 26, 2017
- Operations Narrative Logs, January 16-17, 2017
- Operations Narrative Logs, Monday, February 20, 2017, through Wednesday, February 22, 2017
- PO-2, Primary Coolant System Heatup/Cooldown Operations, Revision 7
- Procedure 4.02, Attachment 3, Risk Management and Risk Monitoring, Revision 77
- QI-3, Reactor Protection Matrix Logic Tests, Revision 7
- QO-5, Valve Test Procedure (Includes Containment Isolation Valves), Revision 102
- SOP-1C, Primary Coolant System Heatup, Revision 23
- SOP-22, Emergency Diesel Generators, Revision 71
- SOP-38 Gaseous Process Monitoring System, Revision 36
- VEN-M1-Q, Block Diagram Reactor Protective System, Sheet 114, Revision 13
- VEN-M201, Wiring Diagram, Section CO4-1 (R.H.), Sheet 62, Revision 56
- WO 430792, CV-0601/CV-0605; Adjust Packing
- WO 431716, Troubleshoot to Identify Z-Phase Intermittent 2400V AC Ground
- WO 434124, MZ-19, Inner Door Seal Repair
- WO 453345, Reactor Protective System Matrix Relay AD3 Found Degraded
- WO 465540, LS-1452; Switch Would Not Turn P-18A, Investigate
- WO 468011, CV-0554; Appears to Be Stuck in Mid-Position
- WO 468133, Work Order Tasks
- WO 468144, EC-162; Troubleshoot Containment Hydrogen Monitor
- WO 470500, VOP-0823, Rebuild Bettis Actuator
- WR 321878, P-18A; Fuel Oil Transfer Pump Failed to Stop on T-25B Level
- WR 409284, Pressure Switch on Start-Up 1-2 is Broken and Needs Replaced
- WT-WTPLP-2016-00019, Present SIPD-2190 to BOX or MPRC and Track to Modification to Completion or Close this WT to Another Tracking Process, March 29, 2016

<u>1R15 Operability Determinations and Functionality Assessments</u>

- AOP-35, Loss of Service Water, Revision 0
- AOP-36, Loss of Component Cooling, Revision 2
- ARP-7, Auxiliary Systems Scheme EK-11 (C-13), Revision 99
- CR-PLP-2006-05863, Valve CV-0823 Indicates Mid-Position, December 12, 2006
- CR-PLP-2016,04435, EK-0555, Diesel Generator Breaker 152-213 Trip, While Attempting to Parallel K-6B, Emergency Diesel Generator 1-2 to EA-12, Bus ID (2400V), September 20, 2016
- CR-PLP-2016-02709, While Reviewing the Results of the Eddy Current Tube Inspection Performed on Emergency Diesel Generator 1-1 Jacket Water Heat Exchanger E-22A in February 2016, the Highest Degradation for an Unplugged Tube (49% Through Wall) was Found Not to Have Sufficient Life to Last to the Next Inspection in February 2018, June 13, 2016
- CR-PLP-2016-04828, The Spare E-22A/B Jacket Water Cooler that is Being Installed in E-22A Under WO 415439 Will Have a Limited Remaining Service Life Once Installed, October 10, 2016

- CR-PLP-2016-05440, While Filling T-82A Safety Injection Tank During MC-11B, Safety Injection Tank Sampling, it was Observed that T-82C Safety Injection Tank Level and Pressure Were also Rising, November 15, 2016
- CR-PLP-2016-05873, Evidence of Leakage Past CK-ES3132, Safety Injection Tank T-82C Check Valve Noted during Performance of MC-11B, Safety Injection Tank Sampling, December 13, 2016
- CR-PLP-2017-00103, Documenting that a Vendor on our Qualified Supplier List did Not Meet the Requirements of our Safety Related Purchase Order #10486195, January 10, 2017
- CR-PLP-2017-00172, During Visual Inspection of E-31B, Diesel Generator 1-2 Lube Oil Cooler it was Identified that Material in Addition to the Gasket was Removed from the Return Side of the Heat Exchanger Gasket Seating Area, January 16, 2017
- CR-PLP-2017-00189, Perform a Past Operability Evaluation of Diesel Generator 1-2 per EN-LI-108, January 17, 2017
- CR-PLP-2017-00227, Recommendation that E-22B be Considered Operable, January 18, 2017
- CR-PLP-2017-00229, All Six if the Internal O-Rings Have a Small Piece Missing on Temperature Control Valve for the Jacket Water Heat Exchanger, January 18, 2017
- CR-PLP-2017-00425, Based on the Acceptability of the Current Condition of the Tube Bundle for the Jacket Water Heat Exchanger E-22A and the Inspection Frequency Change Approved per PMCR 266034, it is Recommended that E-22A be Considered Operable-Op-Evaluation to Evaluate the Impact of the Purchase Order Non-Conformance on the Current Licensing Basis for E-22A and K-6A, February 2, 2017
- CR-PLP-2017-00609, Received Alarm EK-0555, Diesel Generator Breaker 152-213 Trip, Unexpectedly, February 20, 2107
- CR-PLP-2017-0065, Alarm EK-1171, Component Cooling Heat Exchanger Hi-Lo Temperature, Received Unexpectedly, January 8, 2017
- CR-PLP-2017-01121, POS-0823A Open Limit Switch for CV-0823 is Not Functioning, March 22, 2017
- EC 69248, K-6B, TCV-1492 Missing O-Ring Pieces, Revision 0
- EC-70591, Risk Assessment per TS 3.0.4.b for Mode 4 to Mode 3 Transition with Inoperable CV-0823 During Forced Outage, March 21, 2017
- EC-70625, Verify Position Switches for Valve CV-0823 are Used for Indication Only, March 22, 2017
- EN-LI-108, Event Notification and Reporting, Revision 14
- EN-OP-104, Operability Determination Process, Revision 11
- EN-OP-104, Operability Evaluation for CR-PLP-2016-05873, Revision 10
- EN-OP-104, Operability Evaluation for CR-PLP-2017-00425, Revision 11
- EPS-M-14A, Diesel Generator Every Cycle Maintenance, Revision 6
- FSAR Chapter 6, Table 6-3, High Pressure Safety Injection Pump Data Summary, Revision 24
- FSAR Chapter 6, Table 6-5, Safety Injection Tank Design Parameters, Revision 21
- M-208, Service Water System, Sheet 1A, Revision 59
- M-209, Component Cooling Water System, Sheet 3, Revision 50
- MC-11B, Safeguards Boron Sample, Safety Injection Tanks, Revision 43
- SOP-16, Component Cooling Water System, Revision 47
- WO 00470500, Rebuild Bettis Actuator on Valve CV-0823, March 22, 2017
- WO 52641739, K-6B; 24 Month (1 Cycle) Post-Maintenance Test of 1-2 Diesel Generator

<u>1R19 Post Maintenance Testing</u>

- Admin 4.19, Primary Coolant System Leak Rate Monitoring Program, Revision 6
- AOP-23, Primary Coolant Leak, Revision 2

- CR-PLP-2016-5888, P-8A, Auxiliary Feedwater Pump, Conditions Noted with Removed Oil, December 13, 2016
- CR-PLP-2017-00159, While Performing Pre-Tagout Inspections of 1-2 Diesel Generator Under WO 52641739-12, Found Small Oil Leak on Oil Drain Plug for Turbo-Charger, January 16, 2017
- CR-PLP-2017-00160, While Performing Pre-Tagout Inspections of the 1-2 Diesel Generator Under WO 52641739-12, Found One Bold Completely Missing from the North End of the East Side Heat Shield, January 16, 2017
- CR-PLP-2017-00169, Diesel 1-2 Speed Indicator SPI-1473 was Found to be Sticking During Testing of the Tac-Pac, January 16, 2017
- CR-PLP-2017-00172, During Visual Inspection of E-31B, Diesel Generator 1-2 Lube Oil Cooler it was Identified that Material in Addition to the Gasket was Removed from the Return Side of the Heat Exchanger Gasket Seating Area, January 16, 2017
- CR-PLP-2017-00190, During the AGASTAT Relay Functional Check for K-6B, New Replacement Unit Fell Out of the Box, Chipping the Plastic Relay Body, January 17, 2017
- CR-PLP-2017-00193, During Breaker Testing WP 5265635-01 for Breakers 52-216, A thru E had Breaker 52-216E Fail the Instantaneous Pickup Test, January 17, 2017
- CR-PLP-2017-00199, The Flange Upstream of MV-SW279, Diesel Generator 1-2 Service Water Outlet has Pitting on the Seating Surface Aligned to XJ-0804, K-6B Service Water Outlet Side Expansion Joint, January 17, 2017
- CR-PLP-2017-00207, During Performance of WO 52650982-01, All 4 O-Rings Removed from the Lube Oil Temperature Control Valve were Missing About 25% of the Rings, January 18, 2017
- CR-PLP-2017-00213, During Replacement of Expansion Joint XJ-0803, Found that the Gasket Seating Surface on the Metal Flanges have Been Washed Out leaving Approximately Half of the Seating Surface Remaining, January 18, 2017
- CR-PLP-2017-00228, While Performing Post-Maintenance Work on WO 52581222-01 Expansion Joint XJ-0804 it was Discovered that the Expansion Joint that was Ordered and in Hand was the Incorrect Part, January 18, 2017
- CR-PLP-2017-00239, During Post-Maintenance Testing, the 1-2 Diesel Generator Started Slowly with the “B” Air Start Motor Only, January 19, 2017
- CR-PLP-2017-00241, Lock Nut that is Part of the Wiring to the Mechanical Overspeed Trip Device for the Overspeed Trip Alarm on Emergency Diesel Generator 1-2 is Rotating Freely When the Emergency Diesel Generator is Running, January 19, 2017
- CR-PLP-2017-00246, During MO-7A-2, Found Oil Leak on K-6B, 1-2 Emergency Diesel Generator, Crankcase Cover for Cylinder 2R that is Minor in Nature Causing a Housekeeping Issue, January 19, 2017
- CR-PLP-2017-00827, Control Rod Drive 13 Temperature Trending to the Hypothetical Curves Obtained from Historical Data, March 7, 2017
- CR-PLP-2017-00859, On March 8, 2017, at 1700 Hours, Control Rod Drive Seal Leakoff Rates are Higher than Expected and Do Not Follow the Expected Trend, March 9, 2017
- CR-PLP-2017-00977, Control Rod Drive Mechanism Seal Leakoff Measurement of 1400ml/min Exceeds ODMI Trigger Point 4 (1200ml/min), March 17, 2017
- CR-PLP-2017-01030, Failure to Remove Tagging Requirement from Work Order After Moving Task, Causing a Logic Tie, March 19, 2017
- CR-PLP-2017-01032, While Building Spare Control Rod Drive Seal Housing Under Work Order 452001-01, Found Provided Stationary Mechanical Seal Face Unacceptable, March 20, 2017
- CR-PLP-2017-01033, During Staging Tools for Control Rod Drive 13 Replacement, the Normal Special Tool to Perform Step 5.6.10 of Control Rod Drive 13, Control Rod Drive Mechanism Seal Housing Replacement Procedure Could Not be Located, March 20, 2017

- CR-PLP-2017-01061, During a Containment Walkdown a Small Component Cooling Water Leak was Identified on the Component Cooling Water Cooling Lines Control Rod Drive 13, March 21, 2017
- CR-PLP-2017-01072, Found Thermocouple Secondary Position Indication Bracelet Missing from CRD-33, March 21, 2017
- During WO 52643635-01 Inspect and Check 52-216 Breakers A thru # had Breaker 52-216B (Diesel Generator 1-2 Auxiliary Panel G31 Breaker 52-216B) Trip High on Instantaneous Pickup for Y Phase, January 17, 2017
- DWO-1, Operator's Daily/Weekly Items Modes 1, 2, 3, and 4, Revision 107
- EN-HU-106, Procedure and Work Instruction Use and Adherence, Revision 3
- EN-OP-115, Operations Log, Thursday, January 19, 2017
- EN-WM-102, Work Implementation and Closeout, Revision 79
- MO-7A-2, Emergency Diesel Generator 1-2, Revision 93
- Procedure 9.20, Attachment 3, Process Control Sheet, Emergency Diesel Generator 1-2, Revision 26
- QO-21, Inservice Test Procedure – Auxiliary Feedwater Pumps, Revision 74
- RO-22 Basis, Control Rod Drop Times, Revision 6
- SOP-12, Attachment 4, Auxiliary Feedwater Control Valve Minimum Flow Limits, Revision 76
- SOP-22, Attachment 6, Diesel Generator Log Sheet, Revision 71
- SOP-23, Primary Coolant Leak Basis, Revision 0
- WO 451616, CRD-13; High Temperatures Being Seen on Control Rod Drive, Replace Seal Package
- WO 52673931, P-66B; 'B' High Pressure Safety Injection Pump Inboard and Outboard Pump Bearings Oil Change
- WO 52675861-01, RO-97C – Auxiliary Feedwater System Automatic Initiation Test
- WO 52716964-01, MO-7A-2, Emergency Diesel Generator 1-2 (K-6B)
- WO 52719190-01, MO-7A-DG 1-1 Emergency Diesel Generator Fuel Oil Trans Test
- WO 52722691, MO-7A-2; Emergency Diesel Generator 1-2 (K-6B)
- WO 52725535-01, QO-21C, Auxiliary Feedwater System Valve Inservice Test
- WO 52728853, QO-21B – P8B; Inservice Test Procedure

1R20 Outage Activities

- Admin 4.02, Control of Equipment, Revision 77
- Admin 9.20, Surveillance Not Done Justification, Attachment 2, Revision 26
- CR-PLP-2017-00984, 252-101, Station Power Transformer 1-1 Incoming Breaker, Green (Open) Indicating Light did Not Illuminate After Opening, March 17, 2017
- CR-PLP-2017-00986, White Spring Charged Light for 252-402, Startup Transformer 1-3 to Bus 1G, was Not Lit in the Control Room, March 17, 2017
- CR-PLP-2017-00988, CRD-1 Green Matrix Indication did Not Illuminate After the Reactor was Tripped for the Forced Outage, March 17, 2017
- CR-PLP-2017-00994, Control Rod Drive 3 was Discovered to Have an Inactive Non-Excessive Boric Acid Leak, March 18, 2017
- CR-PLP-2017-00995, CV-2113, Charging Loop 1A Stop Valve, Has a Minor Leak, March 18, 2017
- CR-PLP-2017-00996, Control Rod Drive 12 was Discovered to Have an Inactive Excessive Boric Acid Leak, March 18, 2017
- CR-PLP-2017-00997, Control Rod Drive 16 was Discovered to Have an Inactive Excessive Boric Acid Leak, March 18, 2017
- CR-PLP-2017-00998, Control Rod Drive 41 was Discovered to Have an Inactive Excessive Boric Acid Leak, March 18, 2017

- CR-PLP-2017-01000, CV-3039, ‘A’ Safety Injection Tank Control Valve, Fill and Drain had White, Dry Boric Acid Reside Buildup, March 18, 2017
- CR-PLP-2017-01001, MO-3049, ‘C’ Safety Injection Tank Outlet Isolation Valve, was Observed to Have a Minor Packing Leak, March 18, 2017
- CR-PLP-2017-01002, MV-ES3011, High Pressure Safety Injection Train 1 Loop 2A Inlet Valve, was Discovered to Have an Inactive Non-Excessive Boric Acid Leak, March 18, 2017
- CR-PLP-2017-01003, MV-PC1068, ‘B’ Primary Coolant Pump Differential Pressure Indicator Low Side Root Valve, Has a Boric Acid Packing Leak, March 18, 2017
- CR-PLP-2017-01004, The Swagelock Cap Above LT-0101B, Pressurizer Level Control Channel 2, was Discovered to Have an Inactive Non-Excessive Boric Acid Leak, March 18, 2017
- CR-PLP-2017-01005, CV-0909, Letdown Heat Exchanger Component Cooling Water Outlet Valve, has a Minor Packing Leak with Dry, White Boric Acid Residue, March 18, 2017
- CR-PLP-2017-01019, ‘B’ Cooling Tower North/South Traveling Screens are Jammed with Lumber Debris, March 19, 2017
- CR-PLP-2017-01021, Drager Being Worn by the Worker Alarmed with an A1 Code for Oxygen, March 19, 2017
- CR-PLP-2017-01024, During 1F25-1, Forced Oxygenation Resulted in a Crud Burst that was Smaller than Expected, March 19, 2017
- CR-PLP-2017-01026, NRC Questioned Protected Equipment Room Posting for West Engineered Safeguards, March 19, 2017
- CR-PLP-2017-01028, Actual Cobalt-58 Peak Value was Substantially Different than the Predicted CO-58 Peak, March 19, 2017
- CR-PLP-2017-01037, When Exiting the Control Rod Drive Upper Guide Structure Area, the Top Latch Would Not Fasten, March 20, 2017
- CR-PLP-2017-01046, Primary Coolant Pump P-50A, Lower Oil Reservoir Level Transmitter, LT-0317A was Found Low Out of As-Found Tolerance, March 20, 2017
- CR-PLP-2017-01060, During Containment Cleanliness Inspection in Mode 5, Floor Drains F-1059 was Identified as Being Partially Plugged, March 21, 2017
- CR-PLP-2017-01062, One of Two Hold Down Bolts are Missing from a Stanchion Near the Pressurizer Shed in Containment, March 21, 2017
- CR-PLP-2017-01063, NRC Identified: RIA-2316, Fuel Handling Area Monitor #1, Light and Speaker are Missing Nuts to Secure them to the Wall, March 21, 2017
- CR-PLP-2017-01064, NRC Identified: Ladder on 607’ at P-50B Primary Coolant Pump has a Loose Bolt, March 21, 2017
- CR-PLP-2017-01065, NRC Identified: Debris Noted on Floor Plug Ledge Northwest of Pressurizer Shed 649’ Containment, March 21, 2017
- CR-PLP-2017-01106, DWO-13, Local Leak Rate Test for Personnel Air Lock, Inner Door Failed Acceptance Criteria, March 22, 2017
- CR-PLP-2017-01116, Entered AOP-32, Loss of Containment Integrity, March 22, 2017
- CR-PLP-2017-01129, Control Room Received EK-0547, 125V DC Bus Ground Immediately Upon Opening 25F7, Generator Output Breaker, During Preparations for Main Turbine Synchronization, March 23, 2017
- CR-PLP-2017-0999, MV-FW664, Steam Generator E-50A Feedwater Flow Transmitter FT-0701 Low Side Isolation, has Leak from its Packing Area, March 18, 2017
- CR-PLP-2017-1022, CV-0730, Condensate Pumps P-2A/B Recirculation Valve, was Not Giving a Full Closed Indication in the Control Room, March 19, 2017
- EN-MA-117, Foreign Material Exclusion, Revision 10
- EN-OM-123, Fatigue Management Program, Revision 13
- EN-OP-119, Protected Equipment Postings, Revision 8
- EN-OU-108, Shutdown Safety Management Program (SSMP), Revision 8

- GOP-14, Shutdown Cooling Operations, Revision 51
- GOP-3, Mode 3 ≥ 525°F to Mode 2, Revision 32
- GOP-4, Mode 2 to Mode 1, Revision 24
- GOP-8, Power Reduction and Plant Shutdown to Mode 2 or Mode 3 ≥ 525°, Revision 36
- GOP-9, Mode 3 ≥ 525°F to Mode 4 or Mode 5, Revision 37
- MSM-M-71, Containment Cleanliness Implementation Plan and Containment Closeout, Revision 13
- PO-2, PCS Heatup/Cooldown Operations, Revision 7
- Reactivity Plan, 3/17/17 Shutdown for CRD-13 Seal Leakage Repair, March 17, 2017
- SOP-1A, Containment Closeout Walk-Through, Attachment 6, Revision 33
- SOP-1A, Primary Coolant System, Revision 33
- SOP-1B, Primary Coolant System – Cooldown, Revision 21
- SOP-1C, Primary Coolant System – Heatup, Revision 23
- SOP-24, Ventilation and Air Conditioning System, Revision 73
- SOP-3, Engineered Safeguards Administrative Control Verification, Attachment 13, Revision 105
- SOP-6, Reactor Control System, Revision 35
- SOP-8, Main Turbine and Generating Systems, Revision 106

1R22 Surveillance Testing

- QI-4, Pressurizer Low Pressure Safety Injection Signal Initiation Functional Check, Revision 4
- QI-5 Basis, Basis Document for QI-5 Containment High Pressure Test, Revision 0
- QI-5, Containment High Pressure Test, Revision 9
- QO-1, Safety Injection System Actuation Test, Revision 68
- QO-14 Basis, Inservice Test Procedure – Service Water Pumps, Revision 17
- QO-14, Inservice Test Procedure – Service Water Pumps, Revision 40

1EP6 Drill Evaluation

- AOP-23, Primary Coolant Leak, Revision 2
- CR-PLP-2017-00535, Emergency Planning Drill Objective A.1 was Evaluated as Needs Improvement for the Drill on February 8, 2017, February 13, 2017
- CR-PLP-2017-00536, Emergency Planning Drill Objective J.6 was Evaluated as Needs Improvement for the Drill on February 8, 2017, February 13, 2017
- EI-3, Communications and Notifications, Revision 32
- Emergency Action Level Technical Bases Document, Revision 7
- SEP Supplement 1, Emergency Action Level Wall Charts, Revision 3
- Site Emergency Plan, Revision 26
- EOP-1.0, Standard Post-Trip Actions, Revision 19
- EOP-4.0, Loss of Coolant Accident Recovery, Revision 24
- CR-PLP-2017-00491, During the February 8 EP Drill the OSC Electronic Logs were Not Accessible to OSC Participants, February 8, 2017
- Emergency Planning Drill Scenario, February 8, 2017
- EI-6.13, Attachment 1, Protective Action Recommendations for Offsite Populations Flowcharts, Revision 24

4OA1 Performance Indicator Verification

- 2016 Performance Indicator Data Sheets for MS08, Heat Removal Systems, 1st Quarter 2016 through 4th Quarter 2016
- EN-LI-114, Regulatory Performance Indicator Process, Revision 7

- Operations Narrative Logs, Various Dates 2016
- Plant Process Computer Data Sets, Various Dates, 2016

4OA2 Problem Identification and Verification

- 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-2016-02885, Concerns with Conduct of Fire Tours, June 22, 2016
- CR-PLP-2016-02981, Door 160 Found Locked Preventing Verification During Fire Tours, June 29, 2016
- CR-PLP-2016-03014, Contradicting Guidance on How to Check Certain Doors During Fire Tours, June 30, 2016
- CR-PLP-2016-03039, Additional Discrepancies Identified During Extent of Condition Review for Completed Security Patrols under CR-PLP-2016-02650, June 30, 2016
- CR-PLP-2016-03204, Review of Data and Interviews During Extent of Condition Review Indicates Additional Issues with Security Patrols, July 12, 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-2016-05818, Insider Mitigation Program Patrol Discrepancies Found During Extent of Condition Review under CR-PLP-2016-02650, December 7, 2016
- CR-PLP-2017-00516, Security Failed to Meet Site Expectation for Start of a Fire Tour, February 10, 2017
- CR-PLP-2017-00598, Identified 11 Late Fire Tours during a Review of the Previous Set of Tours, February 19, 2017
- CR-PLP-2017-00605, Continuing Negative Trend in Management Oversight and Lack of Training for Security, February 20, 2017
- CR-PLP-2017-00641, Discovered a Late Fire Tour During the 0700 Hour, February 22, 2017
- CR-PLP-2017-01057, During Fire Tour Discovered Cameras for East Engineered Safeguards Room Out of Service, March 21, 2017
- CR-PLP-2017-01471, Discovered Four Security Individuals did Not Have Admin Fire Watch Qualifications Assigned to them in the Computer System, April 10, 2017
- EN-LI-102, Corrective Action Program, Revisions 27 and 28
- EN-LI-118, Cause Evaluation Process, Revisions 22 through 24
- EN-OP-139, Fire Watch Program, Revision 1
- FPIP-4, Fire Protection Systems and Fire Protection Equipment, Revision 37
- LO-PLPLO-2016-00037, Effectiveness Reviews for Root Cause Evaluation, CR-PLP-2016-02650, June 16, 2016
- WT-WTPLP-2016-00335, Tracking of Actions for the Root Cause Evaluation under CR-PLP-2016-02650, September 1, 2016

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

- CR-PLP-2010-04255, Appendix R Non-Compliance, October 1, 2010
- E-129, Switchgear 152-103 Internal Wiring Bus 1C, Sheet 10, Revision 1
- E-129, Switchgear 152-205 Internal Wiring Bus 1D, Sheet 34, Revision 1
- E-154, Service Water Pump Room P-7B, Sheet 1, Revision 23
- E-154, Service Water Pump Room P-7C, Sheet 2, Revision 17

- PLP-RPT-12-Q0147, Fire Risk Assessment of Breaker 152-103, 152-205, and 152-208 Non-Conformances, Revision 0
- WO 271041, 152-103 (P-7B); Install Fuses IAW EC 30926/30988
- WO 271042, 152-205 (P-7C); Install Fuses IAW EC 30926/30989
- WO 271042, 152-208 (P-52B) Install Fuses IAW EC 30926/30990
- Engineering Report No. PLP-RPT-12-Q0147; Fire Risk Assessment of Breaker 152-103, 152-205, and 152-208 Non-Conformances; Revision 0
- Work Order 00271041;152-103 (P-7B) Install Fuses IAW EC 30926/30988; April 3, 2012
- Work Order 00271042; 152-205 (P-7C) Install Fuses IAW EC 30926/30989; November 30, 2011
- Work Order 00271042; 152-208 (P-52B) Install Fuses IAW EC 30926/30990; January 27, 2012
- Condition Report CR-PLP-2010-04255; Appendix R Non-Compliance; October 1, 2010
- Drawing E-154, Sheet 1; Service Water Pump Room P-7B; Revision 23
- Drawing E-129, Sheet 10; Switchgear 152-103 Internal Wiring Bus 1C; Revision 1
- Drawing E-154, Sheet 2; Service Water Pump Room P-7C; Revision 17
- Drawing E-129, Sheet 34; Switchgear 152-205 Internal Wiring Bus 1D; Revision 1

4OA5 Other Activities

- ARP-19, Startup Transformer 1-2 EK-X04 and Open Phase Detection on SU Trans 1-2, Revision 10
- CR-PLP-2012-00924, NRC Event Report Number 47636 Identified a Potential Design Vulnerability, February 8, 2012
- CR-PLP-2012-01245, Vulnerability in the Original Plant Protective Relaying Scheme Design in that it was Unable to Detect the Open Phase Connection Resulting from a Switchyard Component Failure, February 23, 2012
- CR-PLP-2012-06773, The Palisades Response to IER-L2-12-14 “Automatic Reactor Scram Resulting from a Design Vulnerability in the 4.16-ky Bus Undervoltage Protection Scheme,” October 18, 2012
- CR-PLP-2015-01355, Additional Lessons Learned from International Events Similar to the Open Phase Event, April 1, 2015
- CR-PLP-2017-01344, Although Palisades Procedures Do Require Verification of the Voltage of a Bus Power Source Prior to Transferring to that Power Source the Procedure Guidance Does Not Require Verifying the Voltage on Each Phase of that Source, April 4, 2017
- EC 47649, Engineering Report PLP-RPT-13-00049, Single Open Phase EMTP Analysis, Revision 0
- EC 51989, Open Phase Detection on Safeguards Trans. 1-1 and Startup Trans. 1-2, Revision 0
- EOP Supplement 29, Restore Buses 1C, 1D, 1E Power from Offsite Source, Revision 10
- Letter to NRC from Anthony Vitale, 90-Day Response to NRC Bulletin 2012-01, Design Vulnerability in Electric Power System, October 25, 2012
- Letter to NRC from Anthony Vitale, Response to Request for Additional Information – NRC Bulletin 2012-01, January 30, 2014
- PLP-2012-270, TEAR
- PLP-2012-783, TEAR
- WO 52213339, Walk Down the Transformers’ Control Panels for Caulk
- WO 52418858, Perform Corona Camera Inspection on SFMRS and SWYD – Post Outage
- WO 52545080, Walk Down the Transformers’ Control Panels for Caulk
- WO 52553161, Perform Corona Camera Inspection on SFMRS and SWYD – Post Outage
- WO 52616342, PM – 345 KV Transformer Visual Inspection

- WO 52628226, Perform Corona Camera Inspection on SFMRS and SWYD
- WO 52682510, PM-345 KV Transformer Visual Inspection
- WO 52690062, Perform Corona Camera Inspection on SFMRS and SWYD

LIST OF ACRONYMS USED

AC	Alternating Current
ADAMS	Agencywide Documents and Access Management System
AFW	Auxiliary Feedwater
CAP	Corrective Action Program
CCW	Component Cooling Water
CFR	*Code of Federal Regulations*
CR	Condition Report
CRD	Control Rod Drive
CRHVAC	Control Room Heating, Ventilation, and Air Conditioning
DG	Diesel Generator
IP	Inspection Procedure
IR	Inspection Report
LCO	Limiting Condition for Operation
LER	Licensee Event Report
MSPI	Mitigating Systems Performance Index
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
OPC	Open Phase Condition
PI	Performance Indicator
PM	Preventive Maintenance
SWS	Service Water System
TI	Temporary Instruction
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
WO	Work Order