UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
2443 WARRENVILLE ROAD, SUITE 210
LISLE, IL 60532-4352

August 6, 2013

EA-11-214

Mr. Anthony Vitale
Vice President, Operations
Entergy Nuclear Operations, Inc.
Palisades Nuclear Plant
27780 Blue Star Memorial Highway
Covert, MI 49043-9530

SUBJECT: PALISADES NUCLEAR PLANT - NRC INTEGRATED INSPECTION REPORT 05000255/2013003

Dear Mr. Vitale:

On June 30, 2013, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Palisades Nuclear Plant. The enclosed report documents the results of this inspection, which were discussed on July 22, 2013, with yourself and other members of your staff.

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

The inspection also confirmed your implementation of the Confirmatory Order issued to you by the NRC on January 25, 2012. We independently reviewed information you provided, inspected records of activities that were completed, and determined that your actions were in compliance with the requirements delineated in the Confirmatory Order. We also recognized that you chose not to complete the at-the-controls operator's remediation plan, which was described in the Confirmatory Order; chose not to reinstate the operator to licensed duties; and that you notified the NRC on July 18, 2012, that you had made the decision to revoke his license. The NRC has no further questions on this issue. There were no findings in this area.

Based on the results of the integrated inspection, one NRC-identified and one self-revealed finding of very low safety significance were identified. The findings involved a violation of NRC requirements. However, because of their very low safety significance, and because the issues were entered into your corrective action program, the NRC is treating the issues as non-cited violations (NCVs) in accordance with Section 2.3.2 of the NRC Enforcement Policy.

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

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

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (PARS) component of NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

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

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

Enclosure: Inspection Report 05000255/2013003;
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-255
License No:	DPR-20
Report No:	05000255/2013003
Licensee:	Entergy Nuclear Operations, Inc.
Facility:	Palisades Nuclear Plant
Location:	Covert, MI
Dates:	April 1, 2013 through June 30, 2013
Inspectors:	T. Taylor, Senior Resident Inspector A. Scarbeary, Resident Inspector R. Edwards, Reactor Inspector J. Gilliam, Reactor Engineer M. Holmberg, Reactor Inspector J. Lennartz, Project Engineer C. Zoia, Operations Engineer
Approved by:	John B. Giessner, Chief Branch 4 Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

Inspection Report (IR) 05000255/2013003, 04/01/2013 – 06/30/2013, Palisades Nuclear Plant; Inservice Inspection Activities; Problem Identification and Resolution

This report covers a three-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. One Green finding was identified by the inspectors and one Green finding was self-revealed. The findings were considered non-cited violations (NCVs) of NRC regulations. The significance of inspection findings are indicated by their color (i.e., greater than Green, or Green, White, Yellow, Red) and determined using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process," dated June 2, 2011. Cross-cutting aspects are determined using IMC 0310, "Components Within the Cross-cutting Areas," dated October 28, 2011. All violations of NRC requirements are dispositioned in accordance with the NRC's Enforcement Policy dated January 28, 2013. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealed Findings

Cornerstone: Mitigating Systems

- Green. The inspectors identified a finding of very low safety significance and an associated non-citied violation of 10 CFR 50, Appendix B, Criterion IX, "Control of Special Processes," for the licensee's failure to perform adequate pre-weld cleaning and control the welding process in a manner that ensured proper weld fusion of the F-East nozzle reinforcement plate weld joint within the safety injection refueling water storage tank (SIRWT). Consequently, this weld failed in service causing leakage from the SIRWT. The licensee subsequently replaced the floor of the SIRWT and included instructions in the floor replacement work order that required pre-weld cleaning with acetone or other approved solvents. The licensee entered the issue in their corrective action program (CAP) as CR- PLP-2013-03185.

  The finding was determined to be more than minor in accordance with IMC 0612, Appendix B, "Issue Screening," because the inspectors answered "yes" to the More-than-Minor screening question, "If left uncorrected, would the performance deficiency have the potential to lead to a more significant safety concern"? Absent NRC identification, the failure to adequately clean aluminum prior to welding and adequately control the repair welding techniques may have been repeated during future repairs to the SIRWT and resulted in lack of fusion type weld defects/cracks returned to service. Unstable cracks could propagate and create failure of the SIRWT pressure boundary resulting in loss of inventory and increase the risk for insufficient core cooling for post Loss-of-Coolant Accident (LOCA) conditions. Therefore, this finding adversely affected the mitigating systems cornerstone attribute of equipment performance (reliability). The inspectors determined this finding was of very low safety significance (Green) based on answering "no" to the questions in Part A of Exhibit 2, "Mitigating Systems Screening Questions," in IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Specifically, the small amount of leakage from the SIRWT weld leak did not result in loss of a mitigating system function. Therefore, this finding screened as having very low safety significance (Green). This finding has a cross-cutting aspect in the area of human performance for the resources component because the licensee did not ensure that personnel, equipment, procedures, and other

resources were available and adequate to assure nuclear safety was supported (IMC 0310, Item H.2(c)). (1R08.1)

- Green. A finding of very low safety significance with an associated non-citied violation of 10 CFR 50 Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was self-revealed for the failure to adhere to the requirements of the site's corrective action process. Specifically, the station failed to complete corrective actions to address cavitation-induced erosion of service water system components, which resulted in additional through-wall leaks and other adverse conditions in that safety-related system. Since 1993, this phenomenon caused several through wall leaks and the failure of a valve, which isolated normal service water flow to a component cooling water heat exchanger. Corrective actions to replace valves susceptible to this type of erosion were not implemented, and actions to utilize more effective non-destructive examination (NDE) techniques to assess piping or development of pre-emptive repair/replacement strategies were not performed, resulting in further leaks from the service water system. The current corrective action process procedure, EN-LI-102, states that corrective actions are determined, implemented, and adequate to resolve conditions. The licensee entered the issue in their corrective action program (CAP) as CR- PLP-2013-05813.

  The issue was determined to be greater than minor in accordance with IMC 0609 Appendix B, "Issue Screening," issue date September 7, 2012, because it adversely affected the equipment performance attribute of the mitigating systems cornerstone whose objective is to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, a through wall leak can challenge the integrity of the piping and system function. The inspectors concluded the finding was of very low safety significance (Green) utilizing IMC 0609, "Significance Determination Process," issue date June 2, 2011. Specifically, in Attachment 4, issue date June 19, 2012, utilizing Exhibit 2 of Appendix A, all questions in Section A were answered 'no' since the leaks did not result in a loss of safety function. The finding had an associated cross-cutting aspect in the area of problem identification and resolution for the operating experience component. Specifically, the licensee did not implement and institutionalize operating experience through changes to station processes and procedures (P.2(b)). (4OA2.5)

REPORT DETAILS

Summary of Plant Status

The plant began the inspection period operating at 100 percent power. On May 5, 2013, the plant shutdown to repair the SIRWT, which was leaking at a rate greater than the allowed limit established in the NRC's Confirmatory Action Letter. After completing the necessary repairs and verifying the tank was not leaking, the reactor was brought back to critical on June 16, 2013. Power was returned to 100 percent on June 18, 2013. The plant remained at or near 100 percent power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Readiness of Offsite and Alternate AC Power Systems

a. Inspection Scope

The inspectors verified that plant features and procedures for operation and continued availability of offsite and alternate alternating current (AC) power systems during adverse weather were appropriate. The inspectors reviewed the licensee's procedures affecting these areas and the communications protocols between the transmission system operator (TSO) and the plant to verify that the appropriate information was being exchanged when issues arose that could impact the offsite power system. Examples of aspects considered in the inspectors' review included:

- the coordination between the TSO and the plant during off-normal or emergency events;
- the explanations for the events;
- the estimates of when the offsite power system would be returned to a normal state; and
- the notifications from the TSO to the plant when the offsite power system was returned to normal.

The inspectors also verified that plant procedures addressed measures to monitor and maintain availability and reliability of both the offsite AC power system and the onsite alternate AC power system prior to or during adverse weather conditions. Specifically, the inspectors verified that the procedures addressed the following:

- the actions to be taken when notified by the TSO that the post-trip voltage of the offsite power system at the plant would not be acceptable to assure the continued operation of the safety-related loads without transferring to the onsite power supply;
- the compensatory actions identified to be performed if it would not be possible to predict the post-trip voltage at the plant for the current grid conditions;
- a re-assessment of plant risk based on maintenance activities which could affect grid reliability, or the ability of the transmission system to provide offsite power; and

- the communications between the plant and the TSO when changes at the plant could impact the transmission system, or when the capability of the transmission system to provide adequate offsite power was challenged.

Documents reviewed are listed in the Attachment to this report. The inspectors also reviewed CAP items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their CAP in accordance with station corrective action procedures.

This inspection constituted one readiness of offsite and alternate AC power systems sample as defined in Inspection Procedure (IP) 71111.01-05.

b. Findings

No findings were identified.

.2 Readiness for Impending Adverse Weather Condition – Severe Thunderstorm and Tornado Watch

a. Inspection Scope

Since thunderstorms with potential tornados and heavy rain were forecast in the vicinity of the facility for April 18, 2013, the inspectors reviewed the licensee's overall preparations/protection for the expected weather conditions. Heavy rain was present the previous night as well. On April 18, 2013, the inspectors walked down the switchyard and protected area transformer yard, general plant outside areas, and buildings containing safety-related equipment. The inspectors evaluated the licensee staff's preparations against the site's procedures and determined that the staff's actions were adequate. During the inspection, the inspectors focused on plant-specific design features and the licensee's procedures used to respond to specified adverse weather conditions. The inspectors looked outside for any loose debris that could become missiles during a tornado. The inspectors also reviewed a sample of CAP items to verify that the licensee identified adverse weather issues at an appropriate threshold and dispositioned them through the CAP in accordance with station corrective action procedures. Specific documents reviewed during this inspection are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

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

- 'A' containment spray system with 'C' train out of service for maintenance;

- 1-1 emergency diesel generator (EDG) during plant shutdown (credited electrical power source); and
- reactivity control and inventory addition pathways with SIRWT less than 50 percent (credited sources during shutdown operations).

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, Updated Final Safety Analysis Report (UFSAR), Technical Specification (TS) requirements, outstanding work orders (WOs), condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

These activities constituted three partial system walkdown samples as defined in IP 71111.04-05.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

a. Inspection Scope

The inspectors conducted fire protection walkdowns, which were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- Fire Area 4, 1-C switchgear room;
- Fire Area 24, auxiliary feedwater pump room;
- Fire Area 13B, charging pumps; and
- Fire Areas 6 and 8, 1-2 EDG and fuel oil day tank rooms.

The inspectors reviewed areas to assess if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, maintained passive fire protection features in good material condition, and implemented adequate compensatory measures for out-of-service, degraded or inoperable fire protection equipment, systems, or features in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later

additional insights, their potential to impact equipment, which could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the Attachment to this report, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's CAP. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

1R06 Flooding (71111.06)

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:

- east engineered safeguards room

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

b. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

On May 17-18, 2013, during a forced shutdown due to a leak from the SIRWT tank, the licensee inspected and completed eddy current testing on the 'B' component cooling

water (CCW) heat exchanger. The inspectors reviewed the licensee's inspection and testing plan of the 'B' CCW heat exchanger during the forced outage. The inspection identified no tubes as leaking or needing to be plugged due to wall thinning. The inspectors, including support from a regional specialist, concluded that the inspections and testing conducted on the heat exchanger were acceptable to allow the heat exchanger to be returned to service.

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

b. Findings

No findings were identified.

1R08 Inservice Inspection (ISI) Activities (71111.08P)

From June 17, 2013 through July 18, 2013, the inspectors conducted a review of the implementation of the licensee's Inservice Inspection (ISI) Program for monitoring degradation of the risk significant piping and components associated with the American Society of Mechanical Engineers (ASME) Code Class 2 SIRWT.

The inspections described in Sections 1R08.1 below did not constitute an inservice inspection sample as defined in IP 71111.08-05.

.1 Piping Systems Inservice Inspection

a. Inspection Scope

On May 4, 2013, the licensee identified leakage from the SIRWT, which exceeded the licensee's administrative limit of 34 gallons per day and the licensee subsequently completed a plant shutdown to affect repairs. The licensee later determined that the maximum leakage rate reached approximately 90 gallons per day from the SIRWT. After conducting examinations on the inside of the SIRWT, the licensee located a crack in the reinforced plate area weld associated with the F-East nozzle penetration. This crack was located in a weld fabricated during a 2012 forced outage and the licensee believed this crack was the cause of the SIRWT leakage.

The inspectors reviewed records related to the welding and nondestructive examinations associated with the 2012 fabrication of the F-East nozzle fillet weld to determine if the licensee had properly implemented NRC and construction code (USAS B96.1-1967 Specification for Welded Aluminum-Alloy-Field- Erected Storage Tanks) requirements during this repair.

b. Findings

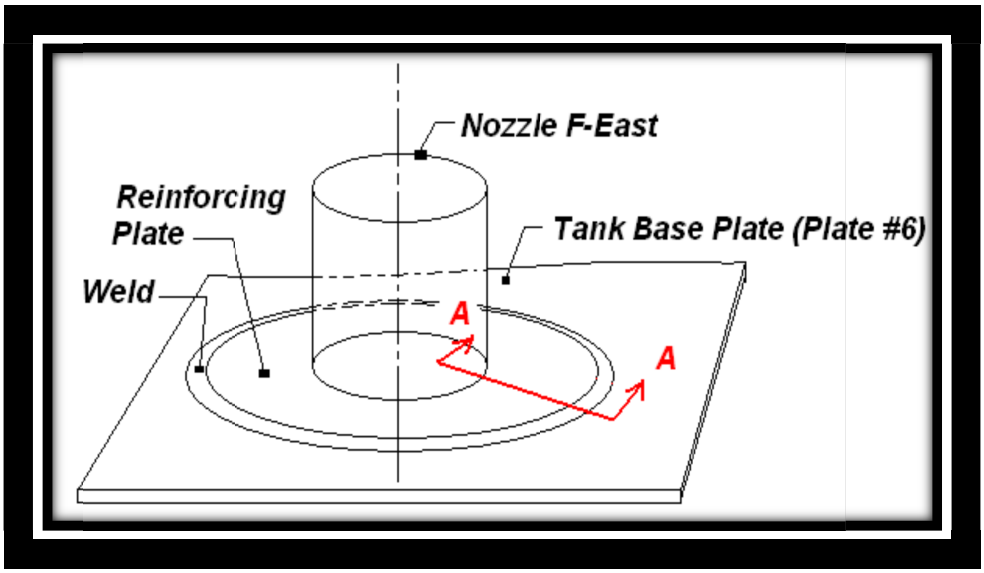
Inadequate Control of Welding at the F-east Nozzle Reinforcement Plate

Introduction: A finding of very low safety significance (Green) and associated NCV of 10 CFR 50 Appendix B Criterion IX, "Control of Special Processes," was identified by the inspectors for the licensee's failure to perform adequate pre-weld cleaning and control the welding process in a manner that ensured proper weld fusion of the F-east nozzle

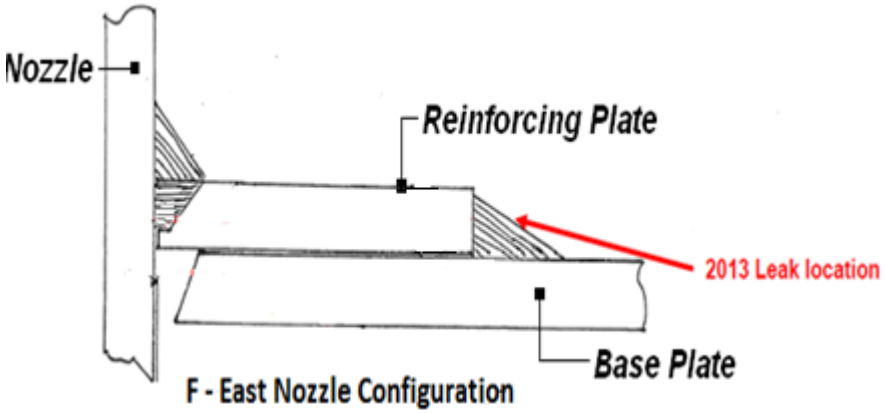
reinforcement plate weld joint within the SIRWT. Consequently, this weld failed in service causing leakage from the SIRWT.

Description: On July 2, 2012, the licensee completed fabrication of nozzle fillet weld 12C1 at the F-east nozzle that connected the reinforcement plate to the tank floor. On July 11, 2013, the inspectors identified that inadequate pre-weld cleaning and inadequate control of the vendor welding process contributed to the failure to achieve proper weld fusion during fabrication of fillet weld 12C1. Consequently, this weld failed in service causing leakage from the SIRWT in May of 2013.

The fillet weld 12C1 connected the tank floor plate to the 23.5 inch diameter by 5/16 inch thick aluminum alloy 6061-T651 reinforcement plate around the 18 inch diameter F-east nozzle. The weld repair was made by manual gas tungsten arc welding (GTAW) with aluminum alloy R5356 filler material. The tank floor plate was constructed of 5454 series aluminum alloy (see figures below- not to scale).



Section A-A



During vacuum box testing of welds inside the SIRWT, the licensee identified a 3/16 inch long circumferentially oriented crack in the F-east nozzle reinforcement plate weld. The licensee removed a 6-inch diameter section of this weld containing the flaw utilizing a hole-saw. The removed sample was sent to the licensee's vendor, Babcock and Wilcox (B&W) Technical Services Group, for destructive examination. In the B&W report titled, "Laboratory Analysis of a Leaking Tank Weld from Palisades," the vendor identified the following:

- "The laboratory data indicated the cracking responsible for the tank weld leakage was mechanical overload that initiated at the weld lack of fusion adjacent to the repair plate and propagated through the weld metal in a ductile fashion. At the leak location, the lack of fusion measured ~80 percent. The average weld fusion was approximately 50 percent in other areas examined. This condition significantly reduced the strength of the welded joint and lead to the leakage."

- There was no evidence that the cracking was due to a corrosion-related mechanism such as stress-corrosion cracking or corrosion fatigue. There was also no evidence that cyclic loading (i.e., fatigue) contributed to the failure.

- The floor plate, repair plate, and weld materials appeared to be consistent with specified requirements.

- "Also noted during the cross section examinations was significant weld porosity near the floor plate lack of fusion region and between the weld beads. Hydrogen causes porosity in aluminum welds. Hydrogen has a high solubility in molten aluminum, but very low solubility in solid aluminum. Hydrogen dissolved in the weld puddle during welding is released during solidification. The relatively high freezing rate of aluminum can prevent the hydrogen from rising to the surface of the weld puddle, causing porosity. Moisture on the work surface and/or electrode is typically the source of the hydrogen, but it can also originate from foreign materials such as oil, paint, dirt, etc. Lack of fusion is caused by improper work surface preparation and/or using too low a welding current."

Aluminum metal exposed to the atmosphere forms a protective oxide layer on the surface of the metal. Cleaning of the aluminum base metal prior to welding is done to

remove the aluminum oxide and/or other surface contaminants (e.g., oils or cutting solvents) that if present would inhibit fusion of the weld metal to the base metal. For example, the aluminum oxide present on the surface of the base material melts around 3,700 degrees fahrenheit while the aluminum material underneath will melt at 1,200 degrees fahrenheit. Therefore, leaving this oxide on the surface of the base material will inhibit penetration (e.g., fusion) by the weld filler metal. To remove aluminum oxides, the standard industry practice is to use a stainless-steel bristle wire brush and/or chemical solvents.

In Work Order 00319746-12, "T-58 - Safety Injection Refueling Water Tank - Install Reinforcing Plates Over Nozzle F (E & W)," no instructions were provided following cutting operations for shop personnel to clean the aluminum plate material for use as reinforcement support on the F-east nozzle of the SIRWT. Specifically, no instruction was provided to apply a chemical cleaning agent following cutting of the plate material to remove dirt, oil or cutting fluids. Instead, the licensee relied on the vendor welding procedure 2223 Ar MN-GTAW, which stated, "Initial cleaning. Wire brushing, grinding, filing, chipping and/or deburring," and "(b) Welds shall be cleaned between each pass. Interpass and final cleaning shall be by wire brushing, grinding, filing, chipping and/or deburring." Cleaning prior to welding was required by Section 5.2 of the SIRWT construction code USAS B96.1-1967 and was essential to ensure proper weld joint fusion as required by the B96.1 Code. Additionally, the following source documents illustrate the importance of thoroughly cleaning aluminum prior to welding to achieve adequate fusion between the weld metal and base metal.

- Metals Handbook - Ninth Edition Volume 2, page 190, "Aluminum oxide immediately forms on aluminum surfaces exposed to air. This layer of aluminum oxide increases in thickness with increasing time and temperature, and is quite thick on heat treated aluminum. Before aluminum can be welded by fusion methods, thick oxide layers must be removed mechanically by machining, filing, wire brushing, scraping or chemical cleaning."

- Metals Handbook - Ninth Edition Volume 2, page 195, "Cleanness of joint surfaces is a prerequisite for sound welded, brazed and soldered joints in aluminum. All grease, oil, dirt, finger prints, water and loose particles of metal must be removed."

- The Welding Handbook - Seventh Edition Volume 1, page 210, "Incomplete fusion or lack of fusion as it is frequently termed, describes the failure of adjacent weld metal and base metal to fuse together completely. This failure to obtain fusion may occur at any point in the weld. Incomplete fusion may be caused by failure to raise the temperature of the base metal (or previously deposited weld metal) to the melting point or failure to remove slag, mill scale, oxides or other material alien to the metal alloy which may be present on the surfaces with which the deposited metal must fuse."

- The Welding Handbook - Seventh Edition Volume 4, page 332 (aluminum alloys), "The surfaces to be joined must be clean to obtain good wetting between the filler metal and the base metal. This means that they must be free of relatively thick oxide, moisture, greases, oils, paints or any other substance. Many contaminants break down at elevated temperatures and produce hydrogen, which causes porosity in fusion welds." And, "Surface oxides on aluminum can

be removed by action of the welding arc as welding progresses. However, it is best to remove the oxide from the surfaces by appropriate chemical or mechanical methods."

- Review of Open Source Documents (Internet) – Aluminum Welding Vendor- Weldcraft, "Cleaning aluminum before TIG (Tungsten Inert Gas) welding is essential to avoid contaminates, which can lead to lack of fusion, inclusions or porosity. Most TIG power sources provide good cleaning action during the EP (electrode positive) portion of the weld cycle; however, you should never rely solely on this cleaning action to do the job for you. Instead, the welder should first wipe the base metal with a cloth to remove dirt, oil or grease. This procedure, though outwardly simplistic, is absolutely necessary. Equally important is removing the oxides that naturally form on the aluminum. This procedure can be done mechanically, by using a scraping tool or a stainless steel wire brush, or chemically, by applying an acidic solution designated for aluminum oxide removal. If you choose to remove the oxides mechanically, remember to designate the scraping tool or wire brush for that purpose only—using these tools for multiple jobs could cause contaminants to be introduced to the aluminum. Using a power brush is not recommended as it can also re-embed contaminants into the metal." Reference Source: http://www.weldcraft.com/2006/11/basics-for-tig-welding-aluminum/.

- Review of Open Source Documents (Internet) – Aluminum Welding Vendor- Air Products, "Porosity can be a significant problem when welding aluminum, caused predominantly by the absorption of hydrogen in the weld pool, which forms pores in the solidifying weld metal. Common sources of hydrogen are moisture and hydrocarbons from contaminants on the parent metal, filler metal, the surrounding atmosphere, or from surfaces in contact with the weld area. However, the most common source of hydrogen is the resilient refractory oxide film, which gives the material its resistance to corrosion and re-forms rapidly on a clean aluminum surface in air. This oxide layer must be removed prior to welding, not only to eliminate the risk of hydrogen absorption but also because of its high melting point of over 2000°C (Centigrade), compared to 660°C of aluminum itself. To avoid porosity it is essential to clean the material surfaces thoroughly by mechanical cleaning or chemical etching to remove the oxide film and other surface contaminants." Reference Source: http://www.airproducts.com/~/media/Files/PDF/industries/metals-fabrication-welding-aluminium.pdf

The licensee provided a hold point in Work Order No. 00319746-12 for quality control personnel to verify that the condition/cleanliness of the reinforcement plates for F nozzles was acceptable. Acceptable was defined by the licensee as a condition where the reinforcement plates were free from debris, with all surface conditions satisfactory for proper installation. However, without a specific cleaning step, the weld joint could look "clean" even with thin films of grease, oil and/or the presence of surface oxides. Following this visual hold point check for cleanliness, no additional checks of surface preparation or conditions were made by licensee staff. Instead, the licensee relied on the contract welder to determine the adequacy of the pre-weld cleanliness prior to welding based upon the welder's judgment and "skill-of-the-craft."

The licensee staff believed the F-east reinforcement plate weld failure was due to application of a low welding current and/or high weld deposition rate and not due to improper surface preparation. This conclusion was based on informal tests conducted by the weld vendor during which lack of fusion defects were created by varying the weld techniques (current, voltage and travel speed). The licensee believed this testing demonstrated that it was possible to get lack of fusion defects on a clean plate. The weld vendor had not recorded the weld parameters used during these informal tests and the extent of lack of fusion was not measured. Therefore, it was not possible for the inspectors to use this information to evaluate the portion of the lack of fusion attributed to poor weld technique and compare it to the lack of fusion attributed to inadequate pre-weld cleaning. Specifically, the B&W Technical Services Group report documented that the average lack of weld fusion was approximately 50 percent and peaked at 80 percent thru-wall (along the vertical weld leg) across the section of weld removed from the failed weld 12C1. Further, improper welding techniques alone could not explain the source of hydrogen induced "significant weld porosity" as identified in the B&W Technical Services Group report on the failed weld. As discussed in the technical references listed above, the source of hydrogen in aluminum weld metal is caused by breakdown of contaminants (grease, oil, and/or water) present at the weld joint surface. Therefore, the inspectors concluded that the welder failed to thoroughly/adequately pre-weld clean the base metal and the licensee failed to adequately control the vendor welding process in a manner that would ensure complete weld fusion.

In response to the 2013 leakage event, the licensee subsequently replaced the SIRWT floor and included instructions in the floor replacement work order that required pre-weld cleaning with acetone or other approved solvents. The licensee entered the failure to perform adequate pre-weld cleaning and control the vendor welding process in a manner which would ensure proper weld fusion into the CAP as CR-PLP-2013-03185.

Analysis: The inspectors determined that the licensee's failure to complete a thorough pre-weld cleaning and to control the vendor welding process in a manner which would ensure proper weld fusion as required by the construction code was a performance deficiency. In accordance with Table 2, "Cornerstones Affected by Degraded Condition or Programmatic Weakness," of IMC 609, Attachment 4, "Initial Characterization of Findings," issued June 19, 2012, the inspectors checked the box under the Mitigating Systems Cornerstone because leakage from the SIRWT could adversely affect the short term heat removal capability of the mitigating systems that take suction on the SIRWT in the event of a primary system LOCA.

The inspectors determined that this issue was more than minor in accordance with IMC 0612, Appendix B, "Issue Screening," dated September 7, 2012, because the inspectors answered "yes" to the More-than-Minor screening question, "If left uncorrected, would the performance deficiency have the potential to lead to a more significant safety concern"? Absent NRC identification, the failure to adequately clean aluminum prior to welding and adequately control the repair welding techniques may have been repeated during future repairs to the SIRWT and resulted in lack of fusion type weld defects/cracks returned to service. Unstable cracks could propagate and create failure of the SIRWT pressure boundary resulting in loss of inventory and increase the risk for insufficient core cooling for post LOCA conditions. Therefore, this finding adversely affected the Mitigating Systems Cornerstone attribute of Equipment Performance (reliability). The inspectors determined this finding was of very low safety significance (Green) based on answering "no" to the questions in Part A of Exhibit 2,

"Mitigating Systems Screening Questions," in IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power," issued on June 19, 2012. Specifically, the small amount of leakage from the SIRWT weld leak did not result in loss of a mitigating system function. Therefore, this finding screened as having very low safety significance (Green).

This finding has a cross-cutting aspect in the area of human performance for the resources component because the licensee did not ensure that personnel, equipment, procedures, and other resources were available and adequate to assure nuclear safety was supported (IMC 0310, Item H.2(c)). Specifically, the licensee failed to provide detailed enough procedural guidance and hold points to ensure 1) adequate base metal surface preparation (e.g., cleaning) of weld areas for aluminum welding, and 2) control of the vendor welding process in a manner that achieved adequate fusion. The inspectors determined the cross cutting aspect of this finding based upon discussions with the licensee's engineering staff, a review of procedures/work instructions utilized, and the welding reference materials cited above in the Description section.

Enforcement: Title 10 CFR 50, Appendix B, Criterion IX, "Control of Special Processes," requires, in part, that measures shall be established to assure that special processes, including welding, heat treating, and nondestructive testing, are controlled and accomplished by qualified personnel using qualified procedures in accordance with applicable codes, standards, specifications, criteria, and other special requirements."

USAS B96.1-1967 Section 5.2, "Welding," Step 5.2.1, "General," stated, "Tanks and their structural attachments shall be welded by an inert-gas metal-arc or tungsten-arc welding process without using flux. The welding shall be performed manually, automatically, or semi-automatically, according to procedures, and by welders and welding operators qualified under the latest edition of the nonferrous section of Section IX, Welding Qualifications, of the 1965 ASME Boiler & Pressure Vessel Code and in such a manner as to insure complete fusion with the base metal within the limits required by the applicable paragraphs and illustrations."

USAS B96.1-1967, Section 5.2.3, Preparation, stated, "All abutting edges to be welded shall be thoroughly cleaned before welding."

Contrary to the above, on July 2, 2012, the licensee did not establish measures to assure that abutting edges of the F-east weld joint (12C1) within the SIRWT were thoroughly cleaned prior to welding and to control welding in a manner that ensured complete fusion with the base metal. Consequently, this weld failed causing leakage from the SIRWT. Because the licensee subsequently removed the flawed weld, an immediate safety hazard no longer exists. Because this violation was of very low safety significance and it was entered into the licensee's corrective action program as CR-PLP-2013-03185, it is being treated as a NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. (**NCV 5000255/2013003-01, Inadequate Control of Welding at the F-East Nozzle Reinforcement Plate)**.

1R11 Licensed Operator Requalification Program (71111.11)

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

a. Inspection Scope

On May 21, 2013, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification training to verify that operator performance was adequate; evaluators were identifying and documenting crew performance problems; and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

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

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

This inspection constituted one quarterly licensed operator requalification program simulator sample as defined in IP 71111.11.

b. Findings

No findings were identified.

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

a. Inspection Scope

On May 5, 2013, and June 16, 2013, the inspectors observed operations staff conducting activities in the control room during a forced outage to shut down and start up the reactor. This was an infrequently performed task or evolution that required heightened awareness and was related to an increase in risk. The inspectors evaluated the following areas:

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

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

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

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

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

- 125 volt vital direct current power system; and
- pressurizer pressure control system.

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

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

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

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

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed the licensee's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- heavy load lifts in screenhouse (dilution water pump);
- liberation of stuck fuel assemblies in the spent fuel pool; and
- removal of 'F' nozzles in SIRWT during repairs.

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

Specific documents reviewed during this inspection are listed in the Attachment to this report. These maintenance risk assessments and emergent work control activities constituted two samples as defined in IP 71111.13-05. The sample associated with the liberation of stuck fuel assemblies will be continued into the third quarter as work continues for that project.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functional Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- 'A' main steam isolation valve outside acceptance criteria of test procedure;
- 1-2 EDG jacket water heat exchanger tube plugging;
- S3 switch out of position in reactor protective system modules;
- backleakage pathways from the emergency core cooling system to the primary coolant system (PCS);
- non-dedicated parts in service water temperature control valves CV-0821/0822; and
- delay in emergency fuel oil transfer pump to prime.

The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical

adequacy of the evaluations to ensure that TS operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the TS and UFSAR to the licensee's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment to this report.

This operability inspection constituted five samples as defined in IP 71111.15-05. The sample associated with the fuel oil transfer pump began late in the quarter and inspection activities continued into the third quarter.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

The inspectors reviewed the following modification:

- review of warm water recirculation back-up supply to service water licensing basis given changes to system and low lake levels.

The inspectors reviewed the configuration changes and associated 10 CFR 50.59 safety evaluation screening against the design basis, the UFSAR, and the TS, as applicable, to verify that the modification did not affect the operability or availability of the affected system. The inspectors, as applicable, observed ongoing and completed work activities to ensure that the modifications were installed as directed and consistent with the design control documents; the modifications operated as expected; post-modification testing adequately demonstrated continued system operability, availability, and reliability; and that operation of the modifications did not impact the operability of any interfacing systems. As applicable, the inspectors verified that relevant procedure, design, and licensing documents were properly updated. Lastly, the inspectors discussed the plant modification with operations, engineering, and training personnel to ensure that the individuals were aware of how the operation with the plant modification in place could impact overall plant performance. Documents reviewed in the course of this inspection are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

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

- auxiliary feedwater actuation system power supply replacement;
- welding and non-destructive examination of SIRWT welds;
- turbine-driven auxiliary feedwater pump maintenance and testing during forced outage; and
- pressurizer spray valve (CV-1059) maintenance and testing during forced outage.

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

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

b. Findings

No findings were identified.

1R20 Outage Activities (71111.20)

a. Inspection Scope

The inspectors evaluated outage activities for a forced outage due to a leak from the SIRWT that began on May 5, 2013, and continued through June 17, 2013. 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, startup

and heatup activities, and identification and resolution of problems associated with the outage. Inspectors reviewed actions taken to repair and test the SIRWT prior to the plant returning to service.

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

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the test results for the following activities to determine whether risk-significant systems and equipment were capable of performing their intended safety function and to verify testing was conducted in accordance with applicable procedural and TS requirements:

- overspeed trip testing of 1-2 EDG (routine);
- PCS leakrate surveillance results (leak detection sample); and
- containment air lock leak rate test (routine).

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

- did preconditioning occur;
- the effects of the testing were adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- acceptance criteria were clearly stated, demonstrated operational readiness, and consistent with the system design basis;
- plant equipment calibration was correct, accurate, and properly documented;
- as-left setpoints were within required ranges; and the calibration frequency was in accordance with TSs, the USAR, procedures, and applicable commitments;
- measuring and test equipment calibration was current;
- test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied;
- test frequencies met TS requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures; jumpers and lifted leads were controlled and restored where used;
- test data and results were accurate, complete, within limits, and valid;
- test equipment was removed after testing;
- where applicable for inservice testing activities, testing was performed in accordance with the applicable version of Section XI, American Society of Mechanical Engineers code, and reference values were consistent with the system design basis;
- where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;

- where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure;
- where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished;
- prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test;
- equipment was returned to a position or status required to support the performance of its safety functions; and
- all problems identified during the testing were appropriately documented and dispositioned in the CAP.

Documents reviewed are listed in the Attachment to this report.

This inspection constituted two routine surveillance testing samples, and one reactor coolant system leak detection inspection sample as defined in IP 71111.22, Sections -02 and-05.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on April 17, 2013, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator control room, the technical support center, the operations support center and the emergency offsite facility to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the corrective action program. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the Attachment to this report.

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

b. Findings

No findings were identified.

.2 Simulator Training Evolution

a. Inspection Scope

The inspectors observed a simulator training evolution for licensed operators on May 21, 2013, which required emergency plan implementation by the operations crew. This evolution was planned to be evaluated and included in performance indicator (PI) data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also reviewed the post-evolution critique for the scenario. The inspectors noted any weaknesses and deficiencies in the crew's performance and ensured that the licensee evaluators noted the same issues and entered them into the CAP. The inspectors also reviewed the scenario package and other documents listed in the Attachment to this report.

This inspection of the licensee's training evolution with emergency preparedness drill aspects constituted one sample as defined in IP 71114.06-05.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

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

4OA1 Performance Indicator Verification (71151)

.1 Unplanned Scrams per 7000 Critical Hours

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams per 7000 Critical Hours (IE01) performance indicator (PI) for the period from the 2nd quarter 2012, through the 1st quarter 2013. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, dated October 2009, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports and NRC Integrated Inspection Reports for the period of April 1, 2012, to March 31, 2013, to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

.2 Unplanned Power Changes per 7000 Critical Hours

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Power Changes per 7000 Critical Hours (IE03) PI for the period from the 3rd quarter 2012, through the 1st quarter of 2013. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, dated October 2009, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, maintenance rule records, event reports and NRC Integrated Inspection Reports for the period of July 1, 2012, to March 31, 2013, to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

4OA2 Identification and Resolution of Problems (71152)

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

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

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify they were being entered into the licensee's CAP at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. Attributes reviewed included: identification of the problem was complete and accurate; timeliness was commensurate with the safety significance; evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent-of-condition reviews, and previous occurrences reviews were proper and adequate; and that the classification, prioritization, focus, and timeliness of corrective actions were commensurate with safety and sufficient to prevent recurrence of the issue. Minor issues entered into the licensee's CAP as a result of the inspectors' observations are included in the Attachment to this report.

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

b. Findings

No findings were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

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

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

b. Findings

No findings were identified.

.3 Semiannual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's CAP and associated work management documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on work planning and preparation and also considered the results of daily inspector CAP item screening discussed in Section 4OA2.2 above, licensee trending and metrics reports, nuclear oversight observations, and self-assessment reports. The inspectors' review nominally considered the 6-month period of January 2013 through June 2013, although some examples expanded beyond those dates where the scope of the trend warranted. Corrective actions associated with a sample of the issues identified in the licensee's CAP reports were reviewed for adequacy.

Throughout the 6-month review time frame of January to June 2013, the site has made many changes to the work planning and preparation process. There has been an implementation of a new way to look at risk mitigation strategies and how these strategies are communicated to the workers. Focus on risk has been increased at the T-week meetings, with the inclusion of Operator's Risk Assessments and Integrated Risk Summary forms in the document packages, as well as being thoroughly discussed during these meetings. The members present also review the mitigating actions highlighted in the schedule for any low, medium, or high risk jobs. These actions are taken back to the work groups, discussed in the pre-job briefs, and challenged by supervisors or the operations department before work proceeds into the field. Site self-assessments and the nuclear oversight organization observations have identified improvements in the area of risk awareness. Critical evolution meetings are also held to facilitate challenges to the scheduling, preparation, or execution of any high risk work activities (either high nuclear or industrial safety risk) and ensure the responsible department has a solid plan in place to conduct the work.

To aid in improving the coordination and scheduling of risk-significant work on safety-related components (usually involving shorter-duration limiting conditions for operations), many work week managers have created specialized time windows detailing all the work tasks from the various work groups and have held reviews of these with the appropriate personnel in advance of the week of execution. This has appeared to be helpful in conducting the work more efficiently while still maintaining safety; an example was the maintenance window for the 1-2 EDG.

There has also been a new expectation that site managers sponsor T-week meetings, attend those meetings, conduct observations, and provide feedback to the working members of that group. All T-week meetings now also include critique forms where the meeting content and discussions are scored. In general, having a management sponsor and the critique forms is helpful to improving the work planning process. However, through NRC observations, these tools can be utilized more effectively to foster improvements. The individuals conducting the critiques or observations could be more critical and ask more challenging questions during the course of the meetings. Also, the individuals present at the meetings could have a better questioning attitude and should not be hesitant to challenge their peers when questions arise.

The inspectors did note instances of communication and coordination issues between departments at times. On several occasions, the work planners did not know details about a job, such as what post-maintenance test was being conducted, and the coordination with the governing work group, such as engineering, was not always completed to answer that question. There were also times when issues with work package quality and work instruction completeness were brought to the meeting, such as steps not being in the correct working order or missing supplemental documents for a work task, and the proper coordination or communications were not completed between the work groups to resolve the issue at hand. Often, this resulted in last minute changes to the work schedule near time of execution when it was identified by workers or supervision that there was an issue before starting work. There were also instances where work scope was added or deleted late within the work planning process, outside of the timeline allowed per station procedure. In a lot of cases, the issues were due to not having the required materials or parts to complete the task or having an appropriate evaluation for replacement parts. Many work activities ended up being removed from the work week due to expanded scope or emergent issues (unanticipated results). The net effects of these issues were generally schedule perturbations during work weeks that could have been avoided had there been better performance during the multi-week planning process.

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

b. Findings

No findings were identified.

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

a. Inspection Scope

During the 2012 end-of cycle review, the NRC noted that licensee performance had resulted in one cross-cutting theme. This theme was associated with oversight under the work practices component of the human performance cross-cutting area (H.4.c).

The inspectors reviewed the condition reports, corrective actions, the site recovery plan, NRC inspection findings, and Palisades' self-assessments/internal reviews related to the areas of management oversight and leadership effectiveness. Some corrective actions that have been implemented since the end-of-cycle review include increasing the use and trending of "What It Looks Like" (WILL) observation sheets and providing feedback for the behaviors seen; reinforcing procedure use, compliance, and accountability throughout the organization; emphasizing the use of risk management tools; and increasing awareness of mitigating strategies for risk-related work activities. Through observations and review of documents, the NRC has seen an increase in management involvement in risk-significant work activities and an increase in the number of WILL sheet observations done by station management that provided valuable feedback to the workers or other managers. Other corrective actions that have been instituted include constructing Individual Development Plans for each station leader and analyzing these with a certified expert to craft a tailored training plan for each manager or supervisor, implementing biweekly superintendent/key supervisor meetings, conducting a site-wide Strategic Talent Solutions assessment by an independent company, and facilitating biweekly manager alignment meetings. The aforementioned corrective actions, as well as others with respect to the training and development of the station leaders, are an on-going project mainly driven by the site's recovery plan.

In reviewing licensee performance over the first and second quarters of 2013, the inspectors noted that some lower level issues are still being encountered in the area of management oversight. For example, the NRC has identified issues with management and oversight of the implementation of programs, such as the security key control program, which contributed to a finding. There have also been various levels of tagging errors which have contributed to the operations department human performance clock reset and have been identified as containing supervisory/oversight factors as a cause of the issues. The inspectors have also observed a lack of management participation in some key station programs, such as the work control and work management program. Station leaders (outside of the T-week manager sponsor) did not regularly attend the T-week meetings, which validate what the working schedule will look like and risk-assess that work for the upcoming weeks. There have also been observations that management could be more intrusive into this process to help identify issues with work package quality and ensuring that teams preparing for big projects, such as the outage HIT team, are properly staffed and those meetings attended as planned.

Management oversight of high risk activities in the field has improved and station leaders have been fulfilling the expectation of sponsoring infrequently performed tests or evolutions by providing briefs as well as directly observing the work in the field. However, oversight of non-high risk work activities could still improve to aid in reinforcing the desired worker behaviors. An example was when preventative maintenance work was being executed on the turbine-driven auxiliary feedwater pump. The inspectors

observed that workers and the work group team leader were present in the field during the maintenance, but levels of supervision above that team were not present to observe the on-going maintenance activities. In some instances, those observations could have aided in cases where work was stopped to address various issues being encountered. Also, based on the inspectors' observations, direct field oversight of contractors during work on the SIRWT could have been utilized more and may have alleviated communications and work coordination issues encountered during the recent forced outage to fix the tank.

One project of note where effective oversight of contractors was observed was the evolution of trying to free stuck fuel assemblies in the spent fuel pool. The Entergy project manager, support staff, senior licensed operators, and radiation protection supervision were always present in the field to oversee the contractor's procedure use and adherence, radiation worker practices, and foreign material controls.

This substantive cross-cutting issue will be further reviewed as part of the NRC's mid-cycle assessment process.

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

b. Findings

No findings were identified.

.5 Selected Issue Follow-up Inspection: Service Water System Issues (Follow up from the Palisades Deviation)

a. Inspection Scope

In 2011 and 2012, Palisades experienced three thru-wall leaks in the service water system and one instance where a valve degraded to a point such that normal flow through one of the CCW heat exchangers was isolated. The inspectors reviewed these issues and past instances of service water system degradation.

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

b. Findings

Introduction: A finding of very low safety significance with an associated non-cited violation of 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was self-revealed for the failure to adhere to the requirements of the site's corrective action process. Specifically, the station failed to complete corrective actions for cavitation-induced erosion of service water system components which allowed additional thru-wall leaks and other adverse conditions to develop in that safety-related system.

Description: Since 2011, Palisades has experienced three thru-wall leaks in safety-related critical service water system piping and an internal failure of a service water valve used to isolate flow to the CCW heat exchanger. The inspectors reviewed condition reports for these issues and others going back to 1993, which dealt with

service water system degradation. The inspectors found documentation of several additional thru-wall leaks going back to 1993. Portions of the Palisades service water system have been susceptible to an industry-wide phenomenon known as cavitation induced erosion. Pressure changes caused by throttled valves in piping can cause cavitation. The cavitation can have an erosive effect on piping downstream of the throttled valve which can lead to thru-wall leakage. Usually, the leakage manifests itself as pin-hole leakage (as it has at Palisades to date). The most recent leak, as of the first quarter of 2013, was from MV-SW136, an isolation valve on the CCW heat exchanger service water outlet, in September 2012. This valve experienced leakage from the same cause in 1993 and 1999. In 2011, stem-disc separation occurred in its sister valve, MV-SW135, on the other CCW heat exchanger, blocking normal service water flow through the heat exchanger. Prior to MV-SW135 leaking, evidence of cavitation damage was noted in 2006 and then later in 2010 during internal visual inspections; however, no work on or evidence of monitoring the valve for further degradation was noted until the stem and disc separated. Susceptibility of these valves to cavitation induced erosion was recognized by the licensee as far back as 1993. To address the issue in 1999, a corrective action to evaluate new designs for the valves to make them less susceptible to erosion was established. The conclusion of the evaluation was to not implement any design change. Instead, it was decided to establish a three year replacement frequency for the valves. This action was never implemented, resulting in the issues described above. Multiple leaks have also occurred downstream of the throttle valve for service water from containment (CV-0824). In 2006, pin-hole leakage was identified. Again, cavitation induced erosion was the identified cause, along with shortfalls in the ultrasonic examination technique used to detect erosion of this nature (the pipe section had been inspected a few months prior and deemed satisfactory). Based on apparent cause evaluations for this event and an adverse trend in service water leakage identified shortly thereafter, the licensee developed corrective actions to address the cause. Since it was decided no design modifications would be made, the licensee stated cavitation induced erosion would need to be managed via preemptive replacements of piping based on wall thinning and/or use of alternate examination techniques. Since those evaluations, leakage downstream from CV-0824 occurred again in 2011 and piping downstream of CV-0823 (a throttle valve associated with high capacity service water flow from a CCW heat exchanger) also developed a thru-wall leak in 2012. Inadequate examination techniques and lack of a preemptive monitoring/replacement strategy were again identified as issues. The corrective action process is a quality process per the station's Quality Assurance Program and is governed by quality procedures which provide standards on corrective actions for adverse conditions such as thru-wall leaks. The current procedure, EN-LI-102, Corrective Action Process, states that corrective actions are determined, implemented, and adequate to resolve conditions. Further, for apparent cause evaluations, plans should be formulated to address identified causes and corrective actions should be completed. However, actions documented by the licensee as necessary to address cavitation induced erosion were not implemented.

Analysis: The inspectors determined the failure to follow the corrective action process in addressing service water system degradation from cavitation induced erosion was a performance deficiency warranting further evaluation in the SDP. The issue was determined to be greater than minor in accordance with IMC 0609, Appendix B, "Issue Screening," issue date September 7, 2012, because it adversely affected the equipment performance attribute of the mitigating systems cornerstone, whose objective is to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences.

The inspectors concluded the finding was of very low safety significance (Green) utilizing IMC 0609, "Significance Determination Process," issue date June 2, 2011. Specifically, in Attachment 4, issue date June 19, 2012, utilizing Exhibit 2 of Appendix A, all questions in Section A were answered 'no' since the leaks did not result in a loss of safety function. The finding had an associated cross-cutting aspect in the problem identification and resolution area for the operating experience component. Specifically, the licensee did not implement and institutionalize operating experience through changes to station processes and procedures (P.2(b)). Recent opportunities to recognize the performance characteristic associated with the proposed cross-cutting aspect existed. Stem-disc separation in MV-SW135 in December 2011 afforded the opportunity to recognize corrective actions that had not been implemented for known erosion problems in MV-SW135 and MV-SW136. Subsequently, MV-SW136 developed a thru-wall leak in September 2012. Extent of condition efforts as a result of leakage downstream of CV-0824 in 2011 also failed to identify a degraded area downstream of CV-0823, which developed a leak in 2012. Additionally, for the most recent leaks in 2012, although the apparent cause analyses adequately addressed the replacement strategy for MV-SW135 and MV-SW136, it was unclear to the inspectors whether the other corrective actions would address the tenets of the cross-cutting aspect assigned. Specifically, although some preemptive piping replacements were scheduled for susceptible areas in light of the recent failures, no monitoring of these specific areas was stipulated nor was it outlined how often the replacements should occur in the future. Additionally, although use of different analytical techniques were stipulated as a corrective action, the resultant update made to the site's service water inspection program did not specifically dictate the susceptible areas requiring inspection, the interval for the inspections, the type of NDE to be employed, nor criteria to be utilized for the NDE. Given these observations, the inspectors concluded the cross-cutting aspect was reflective of current licensee performance.

Enforcement: 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality be prescribed by documented procedures of a type appropriate to the circumstances and be accomplished in accordance with these procedures. The licensee established EN-LI-102, Corrective Action Process, as the current implementing quality procedure for addressing adverse conditions associated with safety-related components, an activity affecting quality. Section 5.10 requires that all corrective action items are completed when a condition report is closed. Further, per Section 4.0, required actions for condition reports are determined, implemented, and adequate to resolve conditions. Finally, per Section 5.8 for apparent causes, a corrective action plan to both correct the condition and address the causes that were identified must be completed.

Contrary to the above, since closure of CR-PLP-1999-00690 in July 2002, which documented leakage from a CCW heat exchanger service water outlet valve caused by cavitation induced erosion, the licensee failed to accomplish the requirements of the station's corrective action process by not completing documented corrective actions to address service water system degradation caused by cavitation induced erosion in order to resolve the condition.

In response to the issue, the licensee established a preventative maintenance requirement to replace the CCW heat exchanger outlet isolation valves on a three year frequency and incorporated an initial replacement schedule for other susceptible

components in the service water system. The issue was also entered into the licensee's corrective action program as CR-PLP-2012-05813.

This violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy because it was of very-low safety significance and was entered into the licensee's CAP **(NCV 05000255/2013003-02, Failure to Follow Corrective Action Process for Service Water Leaks)**.

.6 Selected Issue for Follow-up Inspection: Safety Injection and Refueling Water Tank Leakage (Follow up from the Palisades Deviation)

a. Inspection Scope

On May 4, 2013 the licensee noted excessive leakage from the SIRWT to the roof that the tank sits on. The plant had been operating with leakage from the tank per an approved ASME Code Case. The licensee shut the plant down to repair the tank. The NRC Inspectors assessed licensee efforts to determine the cause of the leak and the proposed corrective actions to allow the tank to be safely returned to service. One finding was identified regarding the cause of the leakage and is included in this report under Section 1R08. Additional activities to assess the completeness of the licensee's root cause efforts in light of previous leaks and potential configuration-control issues over time regarding tank design will be inspected later this year. Therefore, this sample will remain open pending completion of further inspection activities.

b. Findings

No findings were identified.

.7 Selected Issue for Follow-up Inspection: Review of URI 05000255/2011014-09, Potential Loss of Preferred AC Sources in Harsh Environment

a. Inspection Scope

The inspectors reviewed design calculations associated with the 125 volt direct current system and the expected response of the system to grounds or faults. The inspectors also reviewed the status of corrective actions taken to address the URI and the documented environmental qualification of non-safety related cables associated with the primary coolant pump lift oil pumps. The review focused on gathering design and licensing basis information necessary. Additional inspections will be completed in upcoming quarters.

b. Findings

No findings were identified.

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

.1 Response to Safety Injection and Refueling Water Tank Leakage

a. Inspection Scope

On May 4, 2013, the licensee noted excessive leakage from the SIRWT to the roof that the tank sits on. Inspectors assessed the licensee's immediate response to the issue

and follow-on efforts to identify and address pathways for leakage off of the roof. This included monitoring the subsequent shutdown and cooldown. The inspectors reviewed the licensee's dose assessment resulting from the leakage. This effort also included independent sediment sampling by the NRC on the beach plant property near a storm drain outfall, which became uncovered a few weeks after the leak occurred. The sampling results will be contained in publicly available document. Further efforts to review the licensee's characterization/assessment of the leakage, to include any required documentation and reporting, will be performed in future quarters this year.

b. Findings

No findings were identified.

4OA5 Other Activities

.1 Confirmatory Order EA-11-214 Implementation Review

a. Inspection Scope

The inspectors reviewed the corrective actions implemented in response to Confirmatory Order EA-11-214, issued as a result of a successful Alternative Dispute Resolution (ADR) session. The inspectors reviewed the licensee's actions to confirm that the licensee had met the requirements specified in Section V of the Confirmatory Order, including the notifications to the NRC and the Entergy fleet-wide actions. As part of this inspection, the inspectors reviewed Project Plan CR-PLP-2012-00669, "Entergy Actions for Response to NRC Order EA-11-214 Regarding PLP ATC Operator," and its supporting documentation, to ensure that the tasks identified were completed per the agreement. The inspectors' review included an evaluation of the licensee's records demonstrating: development and training of a case study of the underlying event; letters provided to each Entergy operator discussing the underlying event; industry presentation of the underlying event; Entergy fleet procedure evaluation; independent safety culture assessment; and outage planning evaluation. In addition, the inspectors interviewed five licensed operators to verify the effectiveness of the corrective actions taken. Based on these inspection activities, all items (1 through 8) specified in NRC Order EA-11-214 are closed.

b. Findings

No findings were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On July 22, 2013, the inspectors presented the inspection results to Mr. A. Vitale and other members of the licensee staff. The licensee acknowledged the issues presented. For information received during inspection activities, the inspectors confirmed what information was of a proprietary nature.

.2 Interim Exit Meetings

Interim exits conducted:

- On June 12, 2013, the inspectors presented the results of the Confirmatory Order EA-11-214 Implementation Review to Mr. A. Vitale and other members of the licensee staff. The licensee acknowledged the issues presented.
- The results of the inservice inspection were discussed with Mr. B. Davis, on July 18, 2013.

The inspectors confirmed that none of the potential report input discussed was considered proprietary. Proprietary material received during the inspection was handled appropriately by inspectors.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

A. Vitale, Site Vice President
T. Williams, General Plant Manager
C. Amone, NSA Director
D. Corbin, Operations Manager
B. Davis, Engineering Director
B. Dotson, Licensing
T. Davis, Licensing
O. Gustafson, Licensing Manager
T. Horan, Training Superintendent
D. Malone, Emergency Preparedness Manager
T. Mulford, Assistant Operations Manager

Nuclear Regulatory Commission

J. Giessner, Chief, Reactor Projects Branch 4
A. Scarbeary, Resident Inspector
C. Zoia, Operator Licensing Inspector
T. Taylor, Senior Resident Inspector

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000255/2013003-01	NCV	Inadequate Control of Welding at the F-East Nozzle Reinforcement Plate (1R08.1)
05000255/2013003-02	NCV	Failure to Follow Corrective Action Process for Service Water Leaks (4OA2.5)

Closed

05000255/2013003-01	NCV	Inadequate Control of Welding at the F-East Nozzle Reinforcement Plate (1R08.1)
05000255/2013003-02	NCV	Failure to Follow Corrective Action Process for Service Water Leaks (4OA2.5)

Discussed

05000255/2011014-09	URI	Potential Loss of Preferred AC Sources in Harsh Environment (4OA2.7)
EA-2011-214	ORD	ADR Confirmatory Order Items 1 through 8 (4OA5.1)

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 65
- Admin 4.28, Control of Palisades Switchyard Activities, Revision 6
- CR-PLP-2012-01830, V-21C, Turbine Building Fresh Air Fan, Was Observed to Be Running with Its Louvers Mostly Closed, March 20, 2012
- CR-PLP-2012-06176, Breaker for Intake Structure Fresh Air Fan Found In Tripped Position, September 12, 2012
- CR-PLP-2013-01206, Tagout for Work on V-21P Does Not Have an Open Work Order to Restore V-21P, Turbine Building Fresh Air Fan, March 19, 2013
- CR-PLP-2013-01655, During Restoration for the Replacement of HS-V21C the Breaker Failed to Close as Expected, April 12, 2013
- Design Basis Document Topical Report-6.01, Grid Interface Topical Report, Revision 4
- Design Basis Document-6.02, 345kV Switchyard, Revision 4
- Generator Interconnection Agreement, January 19, 2011
- ONP-12, Acts of Nature, Revision 30
- ONP-2.1, Loss of AC Power, Revision 14
- RTO-EOP-002-r13, MISO Market Footprint and Sub-area Capacity Emergencies Procedure, February 24, 2012
- RTO-OP-003-r17, Protocols for Nuclear Plant/Electric System Interfaces Procedure, March 23, 2012
- SOP-23 Checklist #1, Attachment 10, Warm Weather Checklist, Revision 39
- SOP-24, Ventilation and Air Conditioning System, Revision 59
- SOP-30, Attachment 6, Station Power System Checklist, Revision 68
- SOP-32, 345 kV Switchyard, Revision 33
- WO #310580, V-21C Is Running With Louvers Mostly Closed
- WO #345514, V-21P Trips Frequently When It Rains

1R04 Equipment Alignment

- Checklist 22.1, Diesel Generators System Checklist, Revision 57
- GOP-14, Shutdown Cooling Operations, Revision 45
- M-203, P&ID Safety Injection, Containment Spray, and Shutdown Cooling Systems, Sheet 2, Revision 25
- M-204, P&ID Safety Injection, Containment Spray, and Shutdown Cooling Systems, Sheet 1A, Revision 42
- M-204, P&ID Safety Injection, Containment Spray, and Shutdown Cooling Systems, Sheet 1, Revision 84
- M-204, System Diagram for Safety Injection, Containment Spray, and Shutdown Cooling Systems, Sheet A, Revision 8
- QO-16, Inservice Test Procedure – Containment Spray Pumps, Revision 32
- SOP-4, System Operating Procedure: Containment Spray System, Revision 25

1R05 Fire Protection

- CR-OLP-2012-07197, Lead Seal Missing from Fuel Oil Pump Cover on Fire Pump P-41 Diesel Driver, November 11, 2012
- CR-PLP-2012-07193, Motor Driven Fire Pump P-9A has Excessive Packing Leakage, November 11, 2012
- CR-PLP-2013-00901, Partially Full 55-Gallon Drum Near Chemical Addition Tank T-16, February 28, 2013
- Fire Hazards Analysis, Revision 7
- Fire Hazards Analysis, Revision 7
- FPIP-4, Fire Protection Systems and Fire Protection Equipment, Revision 31
- M-216 sheet 2, Fire protection system drawing, Revision 65
- Palisades Auxiliary Building – 1-C Switchgear Room / Elev. 590' Pre – Fire Plan (Fire Area 4)
- Pre-fire plan, Charging Pump Cubicles, Fire Area 13B
- Pre-fire plan, Fire Area 24, AFW pump room
- Pre-fire plan, Fire Area 6 and 8, Diesel Generator 1-2 and Fuel Oil Day Tank Room
- Work Order 333415-01, Fire Pump P-9A Perform Repack, April 9, 2013
- Work Request 290436, Lead Seal Missing from Fuel Oil Pump Cover on Fire Pump P-41 Diesel Driver, November 20, 2012

1R06 Flood Protection Measures

- DBD 7.08, Plant Protection from Flooding, Revision 6
- M-211 sheet 1, Dirty Waste and Gaseous Waste, Revision 76

1R07 Heat Sink Performance

- ANATEC-ET-33, Eddy Current Examination of Balance of Plant Tubing, Revision 4
- CCS-M-2, Permanent Maintenance Procedure: Component Cooling Water Heat Exchanger Maintenance, Revision 23
- CR-PLP-2013-02208, While Cleaning Tube for E-54B CCW Heat Exchanger Found a Small Piece of Gasket Material Flushed Out of Tube #32, May 15, 2013
- ENO19-PN-01, Final Eddy Current Inspection Report of the Tubes in Component Cooling Water Heat Exchanger E-54B, May 23, 2013
- ENO4-PN1-01, Final Eddy Current Inspection Report for E-54B Component Cooling Water Heat Exchanger, April 2009
- Heat Exchanger Visual Inspection Data Sheet for E-54B, May 13, 2013
- NMC62-PN-02, Inspection Report for Component Cooling Water Heat Exchanger E-54B, April 16, 2006
- WO #342263, E-54B Component Cooling Water Heat Exchanger Disassemble/Clean/Inspect and Reassemble, May 10, 2013

1R08 Inservice Inspection Activities

- B&W Report – Laboratory Analysis of a Leaking Tank Weld From Palisades, May 201
- Certificate of Compliance, Alloy 6061 Plate Lot No. 688025PC, June 8, 2012.
- Certificate of Compliance, Filler Metal - Lot Nos. RB1222001 & RB1214159 June 13, 2012.
- CR-PLP-2013-03185, NRC proposed finding regarding F-east nozzle weld, July 22, 2013
- PQR 581 R/1, August 15, 1996.
- Vendor Welding Program Review and Approval Form, July 9, 2012.
- Weld Data Sheet, Joint 12C1 June 28, 2012.
- Weld Filler Material Requisition Form, July 1, 2012.

- Welder Performance Qualification 12475, June 16, 2012.
- Welder Performance Qualification 12477, June 16, 2012.
- Welder Performance Qualification 12497, June 16, 2012.
- Welder Performance Qualification 12498, June 17, 2012.
- Work Order 00319746- 12- T-58 "Safety Injection Refueling Water Tank" Install Reinforcing Plates Over Nozzle F (E & W), June 21, 2011.
- WPS 2223Ar MN-GTAW, January 2, 1997.

1R11 Licensed Operator Requalification Program

- EN-TQ-210, Conduct of Simulator Training, Revision 7
- EOP Supplement #1, Pressure Temperature Limit Curves, Revision 5
- GOP-2, General Operating Procedure: Mode 5 to Mode 3 ≥ 525°F, Revision 35
- GOP-3, General Operating Procedure: Mode 3 ≥ 525°F to Mode 2, Revision 31
- GOP-4, General Operating Procedure: Mode 2 to Mode 1, Revision 23
- PO-2, Technical Specification Surveillance Procedure: PCS Heatup/Cooldown Operations, Revision 6
- SES-110, Simulator Exam Scenario, Revision 2
- SOP-1A, System Operating Procedure: Primary Coolant System, Revision 22
- SOP-1B, System Operating Procedure: Primary Coolant System - Cooldown, Revision 14
- SOP-6, System Operating Procedure: Reactor Control System, Revision 33
- SOP-8, System Operating Procedure: Main Turbine and Generating Systems, Revision 94
- TQF-210-DD03, LOR Simulator Crew Performance Evaluation Report, May 23, 2013

1R12 Maintenance Effectiveness

- 125 Volt Vital DC Power System Maintenance Rule (a)(1) Action Plan, Revision 2 (Final Update)
- CR-PLP-2011-05470, The Maintenance Rule Plant Level Performance Criteria Has Been Exceeded, October 19, 2011
- CR-PLP-2012-00188, Reduced Amps in EB-15 – Breaker 52-1510 Friction Block, January 7, 2012
- CR-PLP-2012-00978, Station Battery ED-01 Cells 11, 39, 55, 56 Shifted Separator Plate, February 12, 2012
- CR-PLP-2012-02236, PZR Heater Breaker 52-1509 tripped, April 6, 2012
- CR-PLP-2012-03755, PZR Heater Breaker 52-1509 tripped, May 9, 2012
- CR-PLP-2012-07097, PZR Proportional Heater Contactor 42-1501 appears to be open, November 6, 2012
- EN-DC-205, Maintenance Rule Monitoring, Revision 4
- EN-DC-206, Maintenance Rule (a)(1) Process, Revision 2
- Maintenance Rule a(1) Action Plan associated with CR-PLP-2012-07097, Pressurizer Heater Breakers, February 28, 2013
- System Health Report, PZR Pressurizer Pressure and Level Control, Q1-2013

1R13 Maintenance Risk Assessments and Emergent Work Control

- Admin 4.02, Control of Equipment, Revision 65
- CN-NFPE-13-7, Palisades Fuel Assembly Lifting Load Limit, Revision 1
- CR-PLP-2013-00196, Issue Identified when Removing Roof Plug over P-40B for Maintenance, January 16, 2013
- EN-MA-119, Material Handling Program, Revision 16
- FS1-0009681, Calculation - Palisades Stuck Fuel Assemblies Safety-Related, Revision 2

- Holtec-13582-1, Procedure for Plasma Cutting of NUS Spent Fuel Racks at Palisades Nuclear Plant, Revision 3
- MSM-M-72, Permanent Maintenance Procedure: Movement of Heavy Loads in Turbine Building, Revision 1
- SOP-14, System Operating Procedure: Circulating Water and Chlorination Systems, Revision 69
- WO #299458-08, Remaining 3 Fuel Bundle Removal in Spent Fuel Pool, April 29, 2013
- WO #338335, P-40B, 'B' Dilution Water Pump Reinstall, April 4, 2013
- WO #350466, Cut Nozzle F-East and F-West in Catacombs

1R15 Operability Determinations and Functionality Assessments

- Calculation EA-EC10306-01, Failure Modes and Effects Analysis for ECCS Pump Suction and 480VAC Load Center Cross-Tie, Revision 0
- CR-PLP-2012-03658, CV-0510, 'A' Main Steam Isolation Valve not Fully Closed, May 6, 2012
- CR-PLP-2012-05738, CV-0510, 'A' Main Steam Isolation Valve was Outside Acceptance Criteria of QO-37, August 17, 2012
- CR-PLP-2013-01127, RPS Bistable S3 in non-conforming position, March 15, 2013
- CR-PLP-2013-01182, 1-2 EDG Jacket Water Cooler Eddy Current Inspection identified 11 Tubes for Plugging, March 18, 2013
- CR-PLP-2013-01182, EDG 1-2 Jacket Water Cooler Eddy Current Test Inspection Identified Tubes for Plugging, March 18, 2013
- CR-PLP-2013-01233, During Eddy Current Testing of EDG 1-2 Jacket Water Cooler, the Pitting Indication Growth Rate Was More Than Expected, March 20, 2013
- CR-PLP-2013-01233, Pitting Indication Growth Rate Found Was More than Expected for 1-2 EDG Jacket Water Cooler, March 20, 2013
- CR-PLP-2013-01376, Service Water Flow Rate through 1-2 Emergency Diesel Generator was Higher Than Expected During Monthly Surveillance Test, March 28, 2013
- CR-PLP-2013-02246, CV-0510, 'A' Main Steam Isolation Valve was Outside Acceptance Criteria of QO-37, May 18, 2013
- Document Revision Notice 12-01523, Revise QO-37 to Include new Baseline Measurement for CV-0510, May 6, 2012
- Drawing 11247-47004, Bistable Trip Unit Schematic, Revision 0A
- Drawing E-4, Sheet 1, 480V Load Centers, Revision 42
- Drawing E-8, Sheet 1, 120V and Preferred AC System, Revision 57
- Drawing E-8, Sheet 2, 120V and Preferred AC System, Revision 55
- EA-EC28106-04, Diesel Generator Jacket Water Cooler Tube Plugging, Revision 0
- EA-EC28106-04, Diesel Generator Jacket Water Cooler Tube Plugging Calculation, Revision 0
- EC 37206, Evaluation of QO-37 Close Measurements for CV-0510
- EOP Supplement 42, Pre and Post RAS Actions, Revision 7
- FSAR Chapter 1, Introduction and General Description of Plant, Revision 29
- FSAR Chapter 14, Safety Analysis, Section 14.22, Maximum Hypothetical Accident, Revision 28
- FSAR Chapter 6, Engineered Safeguards Systems, Revision 29
- FSAR Chapter 7, Instrumentation and Controls, Revision 29
- Inspection Report ENO18-PN1-01, 1-2 EDG Lube Oil and Jacket Water Coolers Eddy Current Inspections, March 19, 2013
- Inspection Report: K6B 1-2 EDG Lube Oil and Jacket Water Coolers, March 19, 2013
- Palisades 50.59 Evaluation: ESS Suction Header Cross-Tie Operation, Revision 0
- QO-37, Main Steam Isolation and Bypass Valve Testing, Revision 11

- SEP-HX-PLP-001, Heat Exchanger Condition Assessment Program, Revision 0
- WO #52325622, CV-0510, Disassemble Valve and Repair, Repack, Cylinder Check, November 27, 2012
- WO #52369505, 1-2 EDG 24 Month PM of Aftercooler and Heat Exchangers, March 19, 2013
- WO #52369505, K-6B [1-2 EDG] 24 Month PM of Aftercooler and Heat Exchangers
- WO #52372040, QO-37 Main Steam Isolation and Bypass Valve Testing, July 2, 2012

1R18 Plant Modifications

- CR-PLP-2003-01472, Pump P-5 Potential Non-conformance, March 7, 2003
- CR-PLP-2004-05122, Clarity regarding available water source for P-5, August 17, 2004
- FSAR Chapter 9, Auxiliary Systems, Revision 29
- NRC Inspection Report 2006004, Section 4OA5

1R19 Post-Maintenance Testing

- CEP-NDE-0640, Non-Section XI Liquid Penetrant Examination (PT), Revision 9
- CEP-NDE-0965, Visual Welding Inspection ASME, ANSI B31.1, Revision 3
- CR-PLP-2013-02031, CV-1059 Has An Excessive Packing Leak, May 6, 2013
- CR-PLP-2013-02413, While Removing Position Switches from CV-1059 Noticed Lower Mounting Bracket Broken, May 29, 2013
- CR-PLP-2013-02423, Found Several Unsat Conditions While Repacking CV-1059, May 30, 2013
- CR-PLP-2013-02581, No Rolled Packing Was Found While Performing Repack of CV-1059, June 10, 2013
- CR-PLP-2013-02582, Installed Live Load Packing Spring Washers in CV-1059 were Installed Incorrectly, June 10, 2013
- CR-PLP-2013-02599, Incorrect Spring and Adjusting Screw Received from Vendor for Rebuild of CV-1059 Actuator, June 12, 2013
- CR-PLP-2013-02738, CV-1059 Has Dual Indication During Recent Startup from Forced Outage, June 21, 2013
- EC-34881, Pressurizer Spray Valve CV-1057 and CV-1059 Revised Packing Arrangement with Live Load Set, Revision 1
- EN-MA-143, Use of Air Operator Valve Diagnostics, Revision 0
- Mistras Procedure 100-AST-006, Vacuum Box Leak Testing of Aboveground Storage Tanks, Revision 3
- PCS-M-8, Permanent Maintenance Procedure: Repairing Pressurizer Spray Valves CV-1057 and CV-1059, Revision 22
- QI-39, AFAS Logic Test, Revision 5
- USAS B96.1-1967, Specification for Welded Aluminum-Alloy Field-Erected Storage Tanks, August 22, 1967
- Valve Performance Report for CV-1059, Pressurizer Spray Valve, June 13, 2013
- Various NDE Personnel qualification records
- WO #350558, CV-1059 Clean and Repack, May 7, 2013
- WO #351952, T-58, Perform NDE and Vacuum Box Testing
- WO #52384758, P/S-0705 Voltage Checks

1R20 Refueling and Other Outage Activities

- CEP-NDE-0505, Ultrasonic Thickness Examination, Revision 4
- CEP-NDE-0640, Non-Section XI Liquid Penetrant Examination (PT), Revision 9
- CEP-NDE-0901, VT-1 Examination, Revision 4

- CEP-NDE-0965, Visual Welding Inspection ASME, ANSI B31.1, Revision 3
- CEP-NDE-3000, ASME Section XI Flaw Evaluation, Revision 4
- FSAR Chapter 5 and 6, Revision 29
- GOP-14, Shutdown Cooling Operations, Revision 45
- GOP-3, Mode 3 ≥ 525°F to Mode 2, Revision 31
- GOP-4, Mode 2 to Mode 1, Revision 23
- PO-2, PCS Heatup/Cooldown Operations, Revision 6
- SOP-1A, Primary Coolant System, Revision 22
- SOP-1B, Primary Coolant System – Cooldown, Revision 14
- SOP-1C, Primary Coolant System – Heatup, Revision 16
- VEN-C18, SIRW Tank (T-58) Floor Plate Patch Configuration, Sheet 94, Revision 0
- WO #350466-15, Initial NDE of Safety Injection Refueling Water Tank Floor, May 13, 2013 (and associated examination reports)

1R22 Surveillance Testing

- Admin Procedure 4.19, PCS Leakrate Monitoring Program, Revision 5
- Basis Document for DWO-13, Technical Specification Surveillance Procedure: Local Leak Rate Tests for Inner and Outer Personnel Air Lock Door Seals, Revision 8
- CIS-M-6, Permanent Maintenance Procedure: Personnel Air Lock Seal Contact Adjustment, Revision 0
- CR-PLP-2013-01765, Two of last three consecutive unidentified leakrates outside 2 standard deviations from the mean, April 22, 2013
- CR-PLP-2013-01965, During Performance of DWO-13, Local Leak Rate Test for Inner and Outer Personnel Air Lock Doors, the Inner Door Pressure Test Would Not Return to Expected Values, May 1, 2013
- CR-PLP-2013-02233, Dry boric acid buildup on some CRDMs in reactor cavity, May 17, 2013
- DWO-13, Technical Specification Surveillance Procedure: Local Leak Rate Tests for Inner and Outer Personnel Air Lock Door Seals, Revision 24
- WO #316743, MZ-19, Containment Inner Door Seal Adjustment, May 2, 2013
- WO #52369503, T-303, EDG 1-2 Overspeed trip setpoint test

1EP6 Drill Evaluation

- 2nd Quarter Emergency Planning Integrated Drill, April 17, 2013
- EI-3, Attachment 1, Palisades Event Notification Form, Drill Messages 1, 2, 6, 10, April 17, 2013
- EI-3, Attachment 1, Palisades Event Notification Form, Drill Message 1, May 21, 2013
- EI-3, Attachment 2, Palisades Technical Data Sheet, Drill Messages 3, 4, 5, 7, 8, 9, April 17, 2013
- Palisades Nuclear Plant Site Emergency Plan, Supplement 1, EAL Wall Charts, Revision 1

4OA1 Performance Indicator Verification

- NRC Performance Indicator Technique / Data Sheet, Unplanned Power Changes, July 2012 through March 2013
- NRC Performance Indicator Technique / Data Sheet, Unplanned Scrams per 7000 Critical Hours, April 2012 through March 2013.

4OA2 Problem Identification and Resolution

- Admin 4.02, Control of Equipment, Revision 65
- CR-PLP-2012-7002, INPO AFI: Engineering Leaders Do Not Insist the Underlying Causes and Degradation Mechanisms are Determined to Resolve Several Long-Standing Issues, November 1, 2012
- CR-PLP-2012-7005, INPO AFI: Leadership Intrusiveness Associated with Work Tasks Which Have Potential Risk to Plant Operation or Equipment, November 1, 2012
- CR-PLP-2012-7006, INPO AFI: Organizational Alignment Issues Due to Individuals Temporarily Filling Key Management Positions, November 1, 2012
- CR-PLP-2012-7007, INPO AFI: Line Managers and Supervisors Sometimes Do Not Use Trending and Self-Assessments to Identify Emerging Issues Nor Followup to Check the Effectiveness of Solutions to Problems, November 1, 2012
- CR-PLP-2012-7342, QA Identified: Key Control Not Being Maintained by the Security Department, November 21, 2012
- CR-PLP-2012-7350, INPO AFI: Specialty Refueling Maintenance Activities are Often Not Executed Properly, November 21, 2012
- CR-PLP-2012-7352, 2012 INPO Stream Analysis Performance Driver: Inconsistent Alignment within the Management Team, November 21, 2012
- CR-PLP-2013-0080, Parts issue not identified until in T-0 resulting in avoidable emergent work during execution week on 'A' Instrument Air Compressor, January 7, 2013
- CR-PLP-2013-0373, December 2012 Program Engineering Department Performance Review Meeting Identified 'Oversight of Supplemental Personnel' Window as RED, January 28, 2013
- CR-PLP-2013-0430, January 2013 Training Department 'Leader Behaviors' Fundamental Window was RED, January 24, 2013
- CR-PLP-2013-0728, T-2 Technical Rigor Meeting was rescheduled due to the Work Control Team not being prepared to demonstrate readiness to execute the schedule, February 19, 2013
- CR-PLP-2013-0790, While Performing Cross-Function Trend Review for the Site Trend Report, Identified Potential Trend for Causal Evaluations Conducted with Causal Codes Associated with Inadequate Program Oversight, February 21, 2013
- CR-PLP-2013-0882, Work on breaker could not be completed as scheduled due to incorrect information on setting sheet, February 26, 2013
- CR-PLP-2013-0963, While preparing to perform work on the Aux Building Radwaste Fan the day of execution problems were identified with the work plan, March 4, 2013
- CR-PLP-2013-1027, Work window associated with the 'B' Low Pressure Safety Injection Pump failed to be executed as planned, March 7, 2013
- CR-PLP-2013-1102, Work order for repair of seat leakage on Spent Fuel Pool cooling suction valve had to be rescheduled due to overlap with work on Spent Fuel Pool Re-rack project, March 14, 2013
- CR-PLP-2013-1264, Operations 'HU Leadership' Fundamental Window Turned RED, March 21, 2013
- CR-PLP-2013-1303, Several problems identified during walkdown with work plan for TDAFW work, March 25, 2013
- CR-PLP-2013-1313, Work order instruction was not properly updated with current configuration of equipment, March 25, 2013
- CR-PLP-2013-1441, NOS identified: 3 work orders in scope for refueling outage reviewed by NOS were found to lack sufficient details and procedural steps, April 1, 2013
- CR-PLP-2013-1594, Additional material requested late for work on VC-10, April 10, 2013
- CR-PLP-2013-1595, Inadequate work duration set at T-10 and expanded work scope for CRHVAC HEPA allowed work to be lost from the work week, April 10, 2013

- CR-PLP-2013-1923, Reactor Head Inspection HIT Meeting for April Did Not Meet Meeting Attendance Expectations, April 30, 2013
- CR-PLP-2013-1935, Work order to repair service water valve was planned for the wrong size valve, April 30, 2013
- CR-PLP-2013-1948, Work on Turbine Building Fresh Air Fan could not be started as scheduled due to no scaffolding being built and this was not identified during the walkdown, May 1, 2013
- CR-PLP-2013-1961, March Department Performance Review Meeting Identified 'Leadership Forums for Continuous Improvement' as RED, May 1, 2013
- CR-PLP-2013-2089, Multiple work jobs were lost at T-10 for work week 1324 due to conflicts with Spent Fuel Pool Re-Rack work, May 9, 2013
- CR-PLP-2013-2196, Work scheduled on power supply for AFAS had to be removed from T-2 work week because the part was not ordered, May 15, 2013
- CR-PLP-2013-2326, Work order was scope deleted due to inability to get Corona Camera as promised, May 23, 2013
- CR-PLP-2013-2328, Work Order was Incorrectly Planned with Inadequate information, May 23, 2013
- CR-PLP-2013-2397, Work Order for replacement of Charging Flow Indicator was lost at T-2 due to lack of replacement gauge, May 28, 2013
- CR-PLP-2013-2497, Fleet Cross-Functional Deep-Dive Identified Area for Improvement in Work Preparation and Execution of Human Performance Tools, June 4, 2013
- CR-PLP-2013-2553, NOS identified: A Visiting Worker Did Not Follow the Protective and Caution Tagging Procedure for Work in SIRWT, June 7, 2013
- CR-PLP-2013-2580, Operations assessment of work orders could not be completed on schedule due to work orders still in "Plan" or "H/APPR" status, June 10, 2013
- CR-PLP-2013-2706, Preventative Maintenance work order for 'C' Charging Pump Discharge Accumulator was completed 35 days later than the prescribed date in the (a)(1) action plan, June 19, 2013
- CR-PLP-2013-2785, Scheduled electrical maintenance work could not be executed due to scaffolding being needed when walkdown originally identified it was not needed, June 25, 2013
- CR-PLP-2013-2789, Valve Team HIT Meeting Lacked Attendees, June 25, 2013
- CR-PLP-2013-2825, Plant Schedule for June 27 has a Breaker Swap V-3A Containment Air Cooler (Rendering it Inoperable) at the Same Time as Inservice Testing of Shutdown Cooling Valves (where it needs to be operable), June 26, 2013
- Department Fundamentals Scorecard Site Roll-ups for 4th Quarter 2012 and 1st Quarter 2013
- EN-FAP-WM-002, Critical Evolutions, Revision 1
- EN-FAP-WM-011, Work Planning Standard, Revision 1
- EN-OP-116, Infrequently Performed Tests or Evolutions, Revision 11
- EN-WM-101, Online Work Management Process, Revision 9
- EN-WM-104, Online Risk Assessment, Revision 7
- EN-WM-105, Planning, Revision 11
- EN-WM-109, Scheduling, Revision 7
- Integrated Risk Summary Forms, January 2013 – June 2013
- LO-PLPLO-2011-00366, Palisades Recovery Plan Phase I Corrective Actions
- LO-PLPLO-2012-00186, Palisades Recovery Plan Phase II Corrective Actions
- Nuclear Oversight Observation Reports with Keyword "Oversight," July 2012-June 2013
- Operators Risk Assessments, January 2013 – June 2013
- Review of Recovery Plan Phase II Metrics, October 2012-June 2013
- T-10 Work Management Team Schedule Review Meetings and Document Packages, January 2013 - June 2013

- T-2 Technical Rigor Risk Review Meetings and Document Packages, January 2013 -June 2013
- T-6 Schedule Freeze Meetings and Document Packages, January 2013 - June 2013
- Weekly Online Readiness Indicators, January 2013 – June 2013
- Work Week Schedules, January 2013 – June 2013
- EA-ELEC-EDSA-012, DC System Battery D01 Short Circuit Analysis, Revision 0
- E-8 Sht. 1, Single Line Meter and Relay Diagram 125 VDC, Revision 57
- CR-PLP-2011-06210, URI- Potential Loss of Preferred AC Sources in Harsh Environment, November 14, 2011
- EA-ELEC-EDSA-010, Palisades DC Power System EDSA Model, Revision 0
- SEP-SW-PLP-002, Service Water and Fire Protection Inspection Program, Revision 1
- CR-PLP-2012-05813, Service water leakage downstream of CV-0823, October 23, 2012
- EN-DC-315, Flow Accelerated Corrosion Program, Revision 8
- CR-PLP-2012-06323, MV-SW136 through wall leak, October 7, 2012
- CR-PLP-2006-03743, Through wall leak downstream of CV-0824, July 30, 2006
- CR-PLP-2007-00376, Trend in service water pipe leaks, January 25, 2007
- CR-PLP-1993-00072, Pinhole leak downstream of MV-SW136, June 2, 1993
- CR-PLP-1999-00690, Through wall leak on MV-SW136, October 27, 1999

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

- EN-RP-113, Response to Contaminated Spills and Leaks, Revision 7
- Emergency Action Level Technical Bases, Revision 5
- EN-CY-111, Radiological Ground Water Monitoring Program, Revision 2
- Various plant construction drawings

4OA5 Other Activities

- EN-OP-115, “Control Room Conduct and Access Control”, Revision 002
- EN-OP-115-02, “Conduct of Operations”, Revision 014
- Project Plan CR-PLP-2012-669, “Entergy Actions for Response to NRC Order EA-11-214 Regarding PLP ATC Operator”, April 15, 2013

LIST OF ACRONYMS USED

AC	Alternating Current
ADAMS	Agencywide Document Access Management System
ADR	Alternative Dispute Resolution
ASME	American Society of Mechanical Engineers
B&W	Babcock & Wilcox
CAP	Corrective Action Program
CCW	Component Cooling Water
CFR	Code of Federal Regulations
EDG	Emergency Diesel Generator
EP	Electrode Positive
GTAW	Gas Tungsten Arc Welding
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
ISI	Inservice Inspection
LOCA	Loss of Cooling Accident
NCV	Non-Cited Violation
NDE	Non-Destructive Examination
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
PARS	Publicly Available Records System
PCS	Primary Coolant System
PI	Performance Indicator
SDP	Significance Determination Process
SIRWT	Safety Injection Refueling Water Tank
SSC	Structure System Component
TIG	Tungsten Inert Gas
TS	Technical Specification
TSO	Transmission System Operator
UFSAR	Updated Final Safety Analysis Report
WILL	“What It Looks Like”
WO	Work Order

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

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter and its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (PARS) component of NRC's Agencywide Documents Access and Management System (ADAMS), accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Sincerely,

/RA/

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

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Letter to A. Vitale from J. Giessner dated August 6, 2013

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