



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

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

November 8, 2010

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

**SUBJECT: PALISADES NUCLEAR PLANT INTEGRATED INSPECTION
REPORT 05000255/2010004**

Dear Mr. Schwarz:

On September 30, 2010, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Palisades Nuclear Plant. The enclosed report documents the results of this inspection, which were discussed on October 1 with you and other members of your staff.

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

Based on the results of this inspection, five NRC-identified findings of very low safety significance were identified. The findings involved violations 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. Additionally, two licensee-identified violations are listed in Section 4OA7 of this report.

If you contest the subject or severity of any Non-cited Violation (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.

C. Schwarz

-2-

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Website 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 05000255/2010004;
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report No: 05000255/2010004

Licensee: Entergy Nuclear Operations, Inc.

Facility: Palisades Nuclear Plant

Location: Covert, MI

Dates: July 1, 2010, to September 30, 2010

Inspectors: J. Ellegood, Senior Resident Inspector
T. Taylor, Resident Inspector
J. Cassidy, Senior Health Physicist

Approved by: John B. Giessner, Chief
Branch 4
Division of Reactor projects

Enclosure

TABLE OF CONTENTS

SUMMARY OF FINDINGS	1
REPORT DETAILS	4
Summary of Plant Status.....	4
1. REACTOR SAFETY	4
1R04 Equipment Alignment (71111.04).....	4
1R05 Fire Protection (71111.05).....	5
1R06 Flooding (71111.06)	6
1R11 Licensed Operator Requalification Program (71111.11)	6
1R12 Maintenance Effectiveness (71111.12)	7
1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)..	8
1R15 Operability Evaluations (71111.15)	10
1R19 Post-Maintenance Testing (71111.19)	13
1R20 Outage Activities (71111.20)	17
1R22 Surveillance Testing (71111.22).....	17
1EP6 Drill Evaluation (71114.06).....	19
2. RADIATION SAFETY	19
2RS4 Occupational Dose Assessment (71124.04)	19
3. OTHER ACTIVITIES	24
4OA1 Performance Indicator Verification (71151).....	24
4OA2 Identification and Resolution of Problems (71152).....	27
4OA3 Follow-Up of Events and Notices of Enforcement Discretion (71153).....	28
4OA5 Other Activities	28
4OA6 Management Meetings	29
4OA7 Licensee-Identified Violations.....	29
SUPPLEMENTAL INFORMATION	1
Key Points of Contact.....	1
List of Items Opened, Closed and Discussed.....	2
List of Documents Reviewed	3
List of Acronyms Used	8

SUMMARY OF FINDINGS

IR 05000255/2010004; 07/01/2010 – 09/30/2010; Palisades Nuclear Plant; Maintenance Risk Assessments and Emergent Work Control, Operability Evaluations, Post-Maintenance Testing

The inspection was conducted by resident and regional inspectors. The report covers a 3-month period of baseline inspection. Four Green findings, all of which were Non-Cited Violations (NCVs), and one Severity Level (SL) IV violation were identified by the inspectors. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified and Self-Revealed Findings

Cornerstone: Initiating Events

- Green. The inspectors identified a finding of very low safety significance (Green) and associated NCV of Technical Specification (TS) 5.4.1, Procedures, for the failure to ensure that American Society of Mechanical Engineers (ASME) Code and site procedural requirements were understood and incorporated during the performance of VT-2 in service inspections. Specifically, the illumination requirements specified in the Code had not been properly incorporated into all site examination procedures, nor were Operations personnel aware of the specific requirements. The licensee disseminated guidance clarifying the requirements and entered the issue into corrective action program (CAP) as CR-PLP-2010-03756.

The issue was more than minor because it adversely affected the Equipment Performance attribute of the Initiating Events cornerstone, whose objective is to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, VT-2 exams performed without fundamental knowledge of Code and procedural requirements could lead to erroneous examination results. The finding screened as Green because no known actual component degradation went undetected as a result of improperly performed exams. The finding had an associated cross-cutting aspect in the area of Human Performance (Procedures), in that the licensee failed to have complete, accurate, and up-to-date procedures and work packages for the VT-2 examinations (H.2(c)). (1R19)

Cornerstone: Mitigating Systems

- Green. The inspectors identified a finding of very low safety significance (Green) and associated NCV of 10 CFR 50.65 a(4) for failing to properly assess and manage the risk associated with the removal of the auxiliary feedwater (AFW) pump room floor plug during emergent maintenance activities. Specifically, the impact of the floor plug was not considered in the risk assessment and licensee personnel were unaware of resources needed to restore configuration. The performance deficiency was identified after the floor plug had been reinstalled. Prior to the next maintenance activity involving floor plugs, the licensee ensured appropriate actions were taken in

accordance with their procedures. The issue was entered into the licensee's CAP as CR-PLP-2010-03434.

The issue was more than minor because it adversely affected the Protection from External Factors attribute of the Mitigating Systems cornerstone, whose objective is to ensure the availability, reliability, and capability of systems that respond to initiating events. Additionally, the inspectors compared the issue to examples in IMC 0612 Appendix E, and concluded it was similar to example 7.e. for more than minor in that the risk assessment was not adequate for a situation where licensee procedures required risk management actions to be taken to address plant configuration. Specifically, the licensee did not perform a risk assessment for removal of the AFW pump room floor plug and did not establish adequate risk management actions to reinstall it in the event of flooding. The finding screened as Green based on an evaluation performed by a Senior Risk Analyst (SRA) using IMC 0609 Appendix M, "Significance Determination Process Using Qualitative Criteria," with a bounding risk evaluation which estimated a relatively low increase in risk for the given configuration. The finding had an associated cross-cutting aspect in the area of Human Performance (Resources) in that the licensee failed to provide complete, accurate, and up-to-date procedures that are adequate to ensure nuclear safety. (H.2(c)). (1R13)

- Green. The inspectors identified a finding of very low safety significance (Green) and associated NCV of TS 3.3.1 and 3.0.3 for failure to comply with required TS actions. Specifically, on August 23, the licensee lost the automatic Loss of Load Trip but neither placed a trip unit in trip nor placed the plant in Mode 3 as required by TS 3.3.1 and TS 3.0.3 respectively. The licensee has restored the Loss of Load trip to operable status and entered the issue into the CAP as CR-PLP-2010-03579.

The inspectors concluded that this issue was more than minor because it adversely affected the Mitigating System Cornerstone objective of ensuring the availability of systems that respond to initiating events. In addition, the inspectors reviewed IMC 0612 Appendix E and determined the issue was not similar to those items listed. The inspectors used IMC 0609 Attachment 4, Phase 1 screening, and discussed the issue with the regional SRA. The inspectors determined that the finding was of very low safety significance, Green, since the Reactor Protection System Safety Function was not lost. The finding had an associated cross-cutting aspect in the area of Human Performance (Decision Making) in that the licensee failed to verify the validity of underlying assumptions. (H.1(b)) (1R15)

- SL IV. The inspectors identified an NCV for failure to make an 8 hour report as required by 10 CFR 50.72. On August 23, the licensee lost the trip function associated with the Loss of Turbine Load but did not recognize that this condition was a loss of a safety function and reportable within 8 hours as required by 10 CFR 50.72. After discussions with the residents, the licensee reported the condition pursuant to 10 CFR 50.72. The licensee entered this condition into the CAP as CR-PLP-2010-3752.

The inspectors concluded that the issue was more than minor because the failure to make the required report impacted the regulatory process. The finding affected the Mitigating System Cornerstone because the intent of the reporting is to capture events where there would have been failure of a safety system to properly operate.

The Finding was processed through the traditional enforcement process. The inspectors concluded that the finding was of SL IV because failure to make a required 10 CFR 50.72 report is an example of a SL IV violation in the Enforcement Policy. The underlying cause of this issue is the same as the Green NCV listed in 1R15 so no additional cross-cutting aspect was assigned. (1R15)

- Green. The inspectors identified a finding of very low safety significance (Green) and associated NCV of 10 CFR 50 Appendix B, Criterion V for failure to accomplish activities affecting quality as prescribed by the documented instructions, procedures, or drawings. Specifically, the licensee replaced a solenoid valve on a safety-related chiller in a manner that permitted a ground to develop on a preferred electrical bus after two years of operations. The licensee repaired the solenoid valve and entered the issue into the CAP as CR-PLP-2010-03234.

The issue was more than minor 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, the ground reduced the reliability of the associated safety-related electrical bus. Further, correction of the ground rendered the control room Heating, Ventilation and Air Conditioning (HVAC) chiller inoperable. The finding screened as Green because there was no loss of system safety function. The licensee determined the cause to be an improperly tightened electrical bushing, and that the proper tightening of bushings was part of electrical maintenance training. Therefore, human error prevention techniques used by the craft during assembly were not sufficient to preclude the bushing from being improperly tightened. (H.4(a)) (1R19)

B. Licensee-Identified Violations

Violations of very low safety significance that were identified by the licensee have been reviewed by inspectors. Corrective actions planned or taken by the licensee have been entered into the licensee's CAP. These violations and corrective action tracking numbers are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

The plant began the inspection period shutdown in Mode 5. On July 2, the licensee started the plant and achieved criticality. The plant ascended in power reaching 100 percent on July 4. The plant remained at or near 100 percent power until September 18 when it began coastdown prior to a scheduled refueling outage.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

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

- control room ventilation during emergent troubleshooting;
- auxiliary feedwater during emergent 'B' pump work; and
- containment spray during 'C' pump motor replacement.

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, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

.2 Semi-Annual Complete System Walkdown

a. Inspection Scope

On September 28, 2010, the inspectors completed a full system alignment inspection of the emergency diesel generator system to verify the functional capability of the system. This system was selected because it was considered both safety significant and risk significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment line ups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. A review of a sample of past and outstanding work orders was performed to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the corrective action program (CAP) database to ensure that system equipment alignment problems were being identified and appropriately resolved. Documents reviewed are listed in the Attachment.

These activities constituted one complete system walkdown sample as defined in IP 71111.04-05.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

a. Inspection Scope

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

- Fire pumps and post-indicating valves;
- mechanical equipment rooms;
- engineered safeguards remote shutdown panel room; and
- east engineered safeguards.

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, 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:

- Diesel generator rooms

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

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

On August 27, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification examinations 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 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:

- Switchyard; and
- reactor protection 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;
- verifying appropriate performance criteria for structures, systems, and components/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:

- Forced outage risk; and
- treatment of floor plugs in risk assessments.

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.

These maintenance risk assessments and emergent work control activities constituted two samples as defined in IP 71111.13-05.

b. Findings

Introduction. The inspectors identified a finding of very low safety significance (Green) and associated Non-Cited Violation (NCV) of 10 CFR 50.65 a(4) for failing to properly assess and manage the risk associated with the removal of the auxiliary feedwater (AFW) pump room floor plug during emergent maintenance activities. Specifically, the licensee did not consider the impact of the floor plug removal in the risk assessment and licensee personnel were unaware of resources needed to replace the floor plug.

Description. On June 14, 2010, the licensee began replacement of the 8A AFW pump motor to ensure operability of the AFW pump. Earlier in the day, the inspectors identified foreign material in the motor vents that came from the rotor. In order to replace the motor, the licensee removed the floor plug. The AFW floor plug acts as a flooding, fire and security barrier for the AFW pump room. Since the AFW pump room is below grade in the turbine building, the room is vulnerable to flooding from both external and internal flooding initiators. In addition to the 8A motor driven AFW, the room also contains the 8B turbine driven AFW pump. When the floor plug was removed, the licensee implemented compensatory measures to address the fire and security aspects of the barrier. In addition, the licensee stationed a maintenance worker at the opening in communication with the control room. The licensee intended the worker to re-establish the barrier in the event of flooding. However, the resources and methodology to re-install the floor plug were not known to the worker or the control room staff.

Discussions with maintenance personnel revealed there was no clear guidance on how to replace the floor plug. The licensee's procedure governing maintenance risk, Administrative Procedure 4.02, Control of Equipment, states that "during modes 1-3, any alteration to a hazard barrier requires a risk assessment prior to initiating the alteration." In addition, Administrative Procedure 4.02, Attachment 3, requires that "personnel shall be stationed at the affected area to reinstall the floor plug AND a line of communication with the control room shall be established." Although the licensee used the site's on-line risk software to model the unavailable AFW pump, the software does not model the floor plug. The fleet procedure describes qualitative methods to assess risk that can be used for components and phenomena not modeled; however, the licensee did not perform a qualitative risk assessment for the removed floor plug. In addition, the inspectors concluded that although the licensee stationed a worker to re-install the floor plug, the lack of knowledge regarding resources needed to reinstall the plug negated the risk mitigation benefit of stationing the worker. The licensee reinstalled the floor plug about 23 hours following removal.

Analysis. The failure to properly assess and manage the risk associated with the removal of the AFW pump room floor plug was a performance deficiency warranting further screening per Inspection Manual Chapter (IMC) 0612. The issue was more than minor because it adversely affected the Protection from External Factors attribute of the Mitigating Systems Cornerstone, whose objective is to ensure the availability, reliability, and capability of systems that respond to initiating events. Additionally, the inspectors compared the issue to examples in IMC 0612, Appendix E, and concluded it was similar to example 7.e. in that the risk assessment was not adequate for a situation where licensee procedures required risk management actions to be taken to address plant configuration. Specifically, the licensee did not perform a risk assessment before the removal of the AFW pump room floor plug and did not establish adequate risk management actions to reinstall the floor plug in the event of flooding.

The inspectors consulted Table 2 of IMC 0609 Attachment 4, "Phase 1-Initial Screening and Characterization of Findings," and determined the Mitigating Systems cornerstone was impacted. Since the licensee did not model the floor plug in their risk assessment program, any risk evaluation would be a qualitative evaluation rather than a quantitative evaluation. As a result, IMC 0609 Appendix K, "Maintenance Risk Assessment and Risk Management Significance Determination Process," could not be used to evaluate the significance of this maintenance rule (a)(4) violation. Therefore, in accordance with IMC 0609 Appendix M, "Significance Determination Process Using Qualitative Criteria," a Senior Risk Analyst (SRA) performed a bounding risk evaluation per step 4.1.2. The duration of the maintenance was approximately 24 hours. The SRA assumed that the turbine building flooding frequency was no greater than 1E-2/yr using information from the Risk Assessment of Operational Events Handbook for Internal Flooding. The Palisades Standardized Plant Analysis Risk Model was used to estimate a conditional core damage probability (CCDP) if a flooding event resulted in a loss of condenser heat sink or loss of main feedwater event and also resulted in the failure of the 8A and 8B AFW pumps. The CCDP calculated was 3.9E-6/yr. Using the flood frequency and the CCDP combined with the short duration of the maintenance, the SRA concluded that the delta Core Damage Frequency for this plant maintenance configuration was less than 1E-6/yr and the finding should be considered to be of very low safety significance (Green). The dominant sequence was a flood-induced loss of main feedwater, failure of the 8A and 8B pumps due to flooding, random failure of the 8C AFW pump, followed by failure of once-through cooling.

A contributing cause of the finding was associated with the human performance cross-cutting component of resources, in that the licensee failed to provide complete, accurate, and up-to-date procedures that are adequate to ensure nuclear safety (H.2(c)). Specifically, Administrative Procedure 4.02 was revised in January 2009 with a new requirement added incorporating a requirement from the fleet On-Line Risk Assessment Procedure, EN-WM-104. The revision added the requirement to perform a risk assessment for an altered hazard barrier. However, the licensee determined that this specific change was not covered in training on the revision and that this portion of the procedure could have offered better guidance.

Enforcement. 10 CFR 50.65 (a)(4) requires, in part, that before performing maintenance activities (including but not limited to surveillance, post-maintenance testing, and corrective and preventive maintenance), the licensee shall assess and manage the increase in risk that may result from the proposed maintenance activities. EN-WM-104, On-Line Risk Assessment Procedure, implements the structure and processes to meet those requirements and is used in conjunction with site Administrative Procedure 4.02, Control of Equipment. Contrary to the above, the licensee failed to perform a risk assessment and manage the risk for the removal of the AFW pump room floor plug on June 14-15, 2010. Specifically, while preparing to perform maintenance on the 8A AFW pump, the licensee failed to perform a qualitative risk assessment to consider the impacts of removing the floor plug and failed to provide resources to reinstall the floor plug to mitigate the risk. Because the violation was of very low safety significance and entered into the licensee's corrective action program as CR-PLP-2010-03434, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. (NCV 05000255/2010004-01, Failure to Perform an Adequate Risk Assessment for Maintenance Activities.)

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- 8A AFW pump motor with foreign material;
- degradation of component cooling water heat exchanger service water temperature control valve;
- degraded pressurizer heater circuitry; and
- inoperability of loss of load trip.

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 four samples as defined in IP 71111.15-05.

b. Findings

- (1) Introduction: The inspectors identified a finding of very low safety significance (Green) and associated NCV of TS 3.3.1 and 3.0.3. After loss of power to auxiliary relays in the Loss of Load trip circuitry, the licensee failed to take the actions of condition E of 3.3.1 and failed to take the actions of Limiting Condition for Operations (LCO) 3.0.3. This finding has an associated traditional enforcement finding documented as NCV 05000255/2010004-03.

Discussion: On August 23, charger ED-206 failed resulting in loss of power to the 125 Vdc data logger panel. Charger ED-206 operates in parallel with battery ED-204 to provide power and the battery discharged following failure of the charger. The design of the system does not include control room annunciation on loss of the charger. The design included an annunciation on low voltage and this alarmed at 2200 hours to alert operators to the condition. The direct current bus provides power to auxiliary relays in the Loss of Load trip circuit which must energize to cause the trip units to generate a reactor trip. The effect of this condition was that the Loss of Load reactor trip would not function. The licensee entered TS LCO 3.3.1 condition C for one Loss of Load trip unit or associated instrument channel inoperable. Although the licensee recognized the condition prevented all four trip units from functioning, the licensee erroneously concluded that the Loss of Load trip had a single channel and condition C sufficed for TS compliance. The inspectors reviewed the licensee's decision and concluded that all four channels were inoperable since none of the trip units would trip. In this condition, the licensee should have entered condition E, "One or more functions with two Reactor Protection System (RPS) trip units inoperable," and TS 3.0.3 because no condition covered loss of the Loss of Turbine trip function. Condition E required that the licensee place one unit in trip in 1 hour and LCO 3.0.3 required the licensee to be in Mode 3 within 7 hours. The licensee had four inoperable trip units for about 10.5 hours; therefore the licensee did not meet the required action times. At 0939, the licensee returned all four channels to operability.

Analysis: The inspectors concluded that the failure to enter required TS actions was a performance deficiency that required a significance determination. The inspectors reviewed IMC 0612 Appendix E and concluded none of the examples applied. Using IMC 0612 Appendix B, the inspectors determined that the finding affected the mitigating system objective of ensuring the availability of systems that respond to initiating events in that the RPS trip on loss of load was not operable. The inspectors further reviewed the finding in accordance with IMC 0609 Attachment 4, Phase 1 screening. The finding represented an actual loss of safety function for the Loss of Load; however, the high pressurizer pressure trip function in the RPS system provides redundant protection for those transients where the loss of load trip would serve as a mitigative system. The inspectors discussed this issue with the regional Senior Risk Analyst who concurred with the inspector's assessment that the item could be screened out in Phase 1, since there was no loss of safety function in the RPS system. Therefore, the inspectors concluded the finding was of very low safety significance, i.e. green. The inspectors reviewed the licensee's apparent cause evaluation and the licensee determined that the cause was an

inappropriate focus on discussions in various documents that stated the purpose of the trip was for equipment protection versus reactor protection. Therefore, the inspectors determined the finding had an associated cross-cutting aspect in the Human Performance Area with a component of decision making in that the licensee in that the licensee failed to verify the validity of underlying assumptions (H.1(b)).

Enforcement: Technical Specification 3.3.1 requires four RPS trip units and associated instrument channels for the Loss of Load trip to be operable in Mode 1 when thermal power is ≥ 17 percent. In the event the LCO is not met, Actions are provided for condition E which requires with two RPS trip units or associated instrument channels inoperable to place one trip unit in trip within 1 hour. In addition, LCO 3.0.3 requires that when an LCO is not met and the associated actions are not provided that action shall be initiated within 1 hour to place the plant in Mode 3 within 7 hours. Contrary to these requirements, on August 23, 2010, the licensee neither placed a trip unit in trip nor placed the plant in Mode 3 within the required timeframes. Because the violation was of very low safety significance and entered into the licensee's corrective action program as CR-PLP-2010-03579, this violation is being treated as NCV 05000255/2010004-02, Failure to Complete Actions Required by LCO 3.0.3 and 3.3.1.

- (2) Introduction: The inspectors identified a finding and associated SL IV NCV for failure to make an 8 hour report as required by 10 CFR 50.72. On August 23, the licensee lost the trip function associated with the loss of turbine load but did not recognize that this condition was a loss of a safety function and reportable within 8 hours as required by 10 CFR 50.72. The underlying finding is NCV 05000255/2010004-02.

Discussion: On August 23, at approximately 2200 hours, the licensee lost power to relays that provide input to the Loss of Load trip units. As a result, none of the trips units were able to function and generate a reactor trip. The licensee initiated condition report PLP-2010-03568 for the low voltage alarm at 0008 hours on August 24, 2010. The licensee did not recognize this condition as a loss of safety function and did not report the condition within 8 hours as required by 10 CFR 50.72. When the inspectors learned of the condition, the inspectors reviewed 10 CFR 50.72 and event reporting guidelines in NUREG-1022, Rev. 2. 10 CFR 50.72 requires that the licensee report to the NRC any event of condition that, at the time of discovery could have prevented the fulfillment of a safety function need to shutdown the reactor. The basis for the TS 3.3.1 discusses the "Loss of Load trip as not required by the accident analysis and redundant to the High Pressurizer Pressure Trip." However, NUREG-1022 clarifies the requirement that it includes systems required by the TS to be operable to perform one of four safety functions and is not determined by the phrase safety related. Further, events must be reported regardless of whether or not an alternate system could have been used to perform the safety function. Therefore, the inspectors concluded that 10 CFR 50.72 required an 8 hour report and the licensee had failed to make the required report. As previously discussed, the licensee also failed to enter the appropriate TS conditions. The inspectors discussed notification requirements and TS entry requirements with the licensee and the licensee subsequently, on September 1, 2010, made the 8 hour notification.

During the quarter, the inspectors also reviewed Licensee Event Report (LER) 2010-001-00, "Potential Loss of Safety Function Due to a Service Water Pump Shaft Coupling Failure," and identified that the licensee failed to make the required LER within the 60 days specified in 10 CFR 50.73. See Section 4OA3. The inspectors considered

this to be a second example of not meeting reporting requirements. In this example, the licensee transmitted the LER 171 days after the event.

Analysis: The inspectors reviewed the violation in accordance with IMC 0612, Appendix B and the discussion for Block 7, Figure 2, paragraph 2.a.v., and “reporting failure” is included as an example of a violation that impacted the regulatory process and subject to traditional enforcement. The inspectors reviewed the finding in accordance with the enforcement policy Section 6.9, “Inaccurate and Incomplete Information or Failure to Make a Required Report,” and concluded that the finding was Severity Level IV because it matches example 9: “A licensee fails to make a report required by 10 CFR 50.72 or 10 CFR 50.73,” and there was no associated violation of Severity Level III or greater. The inspectors reviewed the Reactor Oversight Process aspects and documented the associated finding as NCV 05000255/2010004-02, Failure to Complete Actions Required by LCO 3.0.3 and 3.3.1.

Enforcement: 10 CFR 50.72 requires, in part, that the licensee report, within 8 hours any event or condition that, at the time of discovery, could have prevented the fulfillment of a safety function needed to shutdown the reactor. Contrary to this requirement, on August 23, at 2200, the Loss of Load reactor trip function of RPS became inoperable, and, as of 0600 on August 24, the licensee had not reported the condition. The licensee reported the condition as EN 46221 on September 1, 2010, after the inspectors discussed the condition with the licensee, including reportability. Because the violation was entered into the licensee’s corrective action program as CR-PLP-2010-03752, this violation is being treated as NCV consistent with Section 2.3.2 of the NRC Enforcement Policy. (NCV 05000255/2010004-03, Failure to Make 8 Hour Report Pursuant to 10 CFR 50.72).

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:

- Inverter ground repair;
- control rod 22 seal replacement;
- P-41 diesel fire pump maintenance; and
- failure of rod withdrawal prohibit relay.

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 TS, 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 711111.19-05.

b. Findings

- (1) Introduction: A finding of very low safety significance (Green) and associated NCV of Technical Specification 5.4.1, Procedures, was identified by the inspectors for the failure to ensure that ASME Code and site procedural requirements were understood and incorporated during the performance of VT-2 inservice inspections. Specifically, the illumination requirements specified in the Code had not been properly incorporated into site examination procedures and work instructions.

Description: During a forced outage in June 2010 to correct excessive control rod drive mechanism (CRDM) seal leakage, the licensee replaced the seal package for one of the CRDMs. Part of the post-maintenance testing included a VT-2 visual examination of the affected CRDM components at normal operating temperature and pressure. The inspectors reviewed the work order and procedures, and then interviewed the auxiliary operator who performed the test and his shift manager to see how the examination was performed. The inspectors asked if a procedure demonstration character card was utilized in the performance of the exam. The use of the character card was described in the Entergy procedure CEP-NDE-0902, VT-2 Examination, and the site's procedure EM-09-14, VT-2 Examinations. The card is used to validate that illumination at the exam site is adequate to conduct the exam. The auxiliary operator said that the card was not used and there appeared to be confusion on the part of the operator and shift manager on what the card was and how it was employed. The shift manager called the Program Engineering group to seek guidance on the interpretation of the procedural requirements. In later discussions with the inspector, Program Engineering personnel explained that the site was committed to ASME Boiler and Pressure Vessel Code Section XI, 2001 edition with 2003 addenda. This version of Code did not have specific requirements for the use of the character card. The inspector asked why the fleet procedure mandated use of the card and what the reference to the card meant in the site procedure. Approximately 2 weeks later, the inspector was informed by the licensee that upon further review it was discovered that an errata had been added to the site-applicable Code in 2003 which contained specific requirements for validation and documentation of illumination at exam sites. Contrary to these requirements, personnel in Operations Department were not knowledgeable of the specific requirements outlined in the Code. The licensee initiated a condition report to address the issue and provided guidance and materials (visual exam character cards) to Operations personnel so future VT-2 exams would be conducted in accordance the Code and procedural requirements while further corrective action was considered.

Analysis: The failure to properly incorporate Code and procedural requirements into the conduct of visual examinations was a performance deficiency warranting further screening per IMC 0612. The issue was more than minor because it adversely affected the Equipment Performance attribute of the Initiating Events cornerstone, whose

objective is to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, VT-2 exams performed without fundamental knowledge of Code and procedural requirements could lead to erroneous examination results.

To determine the significance of the finding, IMC 0609, Attachment 4, "Phase 1-Initial Screening and Characterization of Findings," was used based on the issue screening as greater than minor. Per Table 2 guidance under the Barriers Cornerstone, the issue was classified under the Initiating Events Cornerstone. The finding was determined to be of very low safety significance (Green) based on answering 'no' to the Loss of Cooling Accident Initiator question in Table 4a, as no actual degradation based on this performance deficiency was identified.

A contributing cause of the finding was associated with the human performance area, cross-cutting component of resources, with the aspect that the licensee failed to have adequate procedures for the conduct of VT-2 exams. Specifically, the licensee did not ensure that Code requirements were incorporated into work instructions in a manner that allowed all personnel performing exams to be familiar with the illumination and documentation requirements of the Code (H.2(c)).

Enforcement: Technical Specification 5.4.1, Procedures, requires, in part, that written procedures shall be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33 9.a requires, in part, that maintenance that can affect the performance of safety-related (primary pressure boundary) equipment should be properly preplanned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances. Contrary to the above, on July 1, 2010, the licensee failed to ensure that a VT-2 examination of control rod drive mechanism (CRDM) components was conducted in accordance with site procedural and American Society of Mechanical Engineers (ASME) Code requirements. It is likely these requirements were not met on other occasions in the past when Operations personnel performed VT-2 examinations. Because the violation is of very low safety significance and was entered into the licensee's CAP as CR-PLP-2010-03756, this violation is being treated as a NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy. (NCV 05000255/2010004-04, Failure to Ensure Code Requirements Met When Performing VT-2 Exams).

- (2) Introduction. The inspectors identified a finding of very low safety significance (Green) and associated NCV of 10 CFR 50 Appendix B, Criterion V, for the failure to accomplish activities affecting quality as prescribed by the documented instructions, procedures, or drawings. Specifically, the licensee replaced a solenoid valve on a safety-related chiller in a manner that permitted a ground to develop on a preferred electrical bus after 2 years of operations.

Description: On July 30, 2010, a ground developed on safety-related inverter ED-07. The licensee performed trouble shooting on the associated bus and located a bare wire on the control room HVAC chiller hot gas bypass solenoid valve. The licensee initially attributed the bare wire to a manufacturing error and documented this conclusion in the CAP. When the inspectors questioned electrical maintenance supervision on the installation of these components, they discovered that personnel involved in the CAP evaluation and closure were unaware that the solenoid may have been partially

disassembled by site electrical workers as part of the installation process. The licensee replaced the solenoid valve in 2008 as preventive maintenance. As part of the installation, electricians must pull the leads through an insulated bushing and connect the solenoid to existing plant conduit using conduit nuts. When troubleshooting, the electricians discovered that the bushing had come loose inside its enclosure and discovered chafing and damage to the coil wire insulation. Subsequent to the inspectors' questions, the licensee performed a more detailed evaluation and concluded the likely cause was an improperly tightened bushing during installation. As a result of the error, the licensee reduced the reliability of the ED-07 inverter and accrued additional inoperability time on the control room heating, ventilation, and air conditioning (HVAC) chiller.

Analysis: The failure to properly perform maintenance on the Control Room HVAC chiller was a performance deficiency warranting further screening per IMC 0612. The issue was more than minor 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, the ground reduced the reliability of the associated safety-related electrical bus and correction of the ground required rendering the control Room HVAC chiller inoperable.

To determine the significance of the finding, IMC 0609, Attachment 4, "Phase 1-Initial Screening and Characterization of Findings," was utilized based on the issue screening as greater than minor. Per Table 4a under the Mitigating Systems Cornerstone, the inspectors concluded the finding was of very low safety significance (Green) because per question 2, the finding did not represent an actual loss of safety function.

A contributing cause of the finding was associated with the human performance cross-cutting component of work practices, in that appropriate human error prevention techniques were not utilized during assembly of the solenoid valve (H.4(a)). Specifically, the licensee concluded that the procedure used contained sufficient detail and that tightening of the bushing was skill expected of electricians. Therefore, the human error prevention techniques used by the craft were not sufficient to preclude the bushing from being improperly tightened. The licensee determined that proper tightening of bushings was part of training.

Enforcement: 10 CFR 50, Appendix B, Criterion V, requires, in part, that activities affecting quality shall be accomplished as prescribed by documented instructions, procedures, or drawings. Contrary to the above, on May 20, 2008, the licensee installed a solenoid valve using WO 51623144 on a control room HVAC chiller in such a manner that a ground occurred approximately 2 years later. This ground impacted a safety-related bus and resulted in additional inoperability time for the chiller. The licensee repaired the solenoid valve and entered the issue into the CAP as CR-PLP-2010-03234. Because the violation is of very low safety significance and was entered into the licensee's corrective action program, this violation is being treated as a NCV consistent with Section 2.3.2 of the NRC Enforcement Policy. (NCV 05000255/2010004-05, Ground on Preferred Alternating Current (AC) Bus Due to Improperly Installed Electrical Bushing).

1R20 Outage Activities (71111.20)

.1 Refueling Outage Activities

a. Inspection Scope

The inspectors evaluated outage activities for a planned outage scheduled to begin on October 3, 2010, and continue through October 28, 2010. The inspectors reviewed planned activities to ensure that the licensee considered risk in developing, planning, and implementing the outage schedule.

This inspection did not constitute a sample as defined in IP 71111.20-05 since the outage had not been completed before the end of the inspection period. Inspector reviews were limited to pre-outage activities.

b. Findings

No findings were identified.

.2 Forced Outage to Repair Control Rod Drive Mechanism Seal

a. Inspection Scope

The inspectors evaluated activities for an unplanned outage that began on June 24 and continued through July 2. The inspectors reviewed activities to ensure that the licensee considered risk in developing, planning, and implementing the outage schedule.

The inspectors observed the reactor shutdown and cooldown, outage equipment configuration and risk management, electrical lineups, 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.

This inspection constituted one 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:

- Quarterly Testing of the 1-3 diesel generator;
- containment tendons/concrete;
- increased leakage into safety injection tank from PCS(coolant system leak detection sample);

- 'A' CCW pump inservice test; and
- 'B' HPSI Pump inservice test.

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

- Did preconditioning occur;
- were the effects of the testing adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- were acceptance criteria clearly stated, 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 were in accordance with TSs, the UFSAR, procedures, and applicable commitments;
- measuring and test equipment calibration was current;
- test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied;
- test frequencies met TS requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures; jumpers and lifted leads were controlled and restored where used;
- test data and results were accurate, complete, within limits, and valid;
- test equipment was removed after testing;
- where applicable for inservice testing activities, testing was performed in accordance with the applicable version of Section XI, ASME 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, two inservice testing samples, and one reactor coolant system leak detection 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 July 21, 2010, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the control room simulator and in the Emergency Operations 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. RADIATION SAFETY

CORNERSTONE: OCCUPATIONAL RADIATION SAFETY

2RS4 Occupational Dose Assessment (71124.04)

This inspection constituted a partial sample as defined in IP 71124.04-5.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed the results of radiation protection program audits related to internal and external dosimetry (e.g., licensee's quality assurance audits, self-assessments, or other independent audits) to gain insights into overall licensee performance in the area of dose assessment and focus the inspection activities consistent with the principle of "smart sampling."

The inspectors reviewed the most recent National Voluntary Laboratory Accreditation Program (NVLAP) accreditation report on the vendor's most recent results to determine the status of the contractor's accreditation.

A review was conducted of the licensee procedures associated with dosimetry operations, including issuance/use of external dosimetry (routine, multibadging, extremity, neutron, etc.), assessment of internal dose (operation of whole body counter, assignment of dose based on derived air concentration-hours, urinalysis, etc.), and

evaluation of and dose assessment for radiological incidents (distributed contamination, hot particles, loss of dosimetry, etc.).

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

b. Findings

No findings were identified.

.2 External Dosimetry (02.02)

a. Inspection Scope

The inspectors evaluated whether the licensee's dosimetry vendor is NVLAP accredited and if the approved irradiation test categories for each type of personnel dosimeter used are consistent with the types and energies of the radiation present and the way the dosimeter is being used (e.g., to measure deep dose equivalent, shallow dose equivalent, or lens dose equivalent).

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

The inspectors assessed whether non-NVLAP accredited passive dosimeters (e.g., direct ion storage sight read dosimeters) were used according to licensee procedures that provide for periodic calibration, application of calibration factors, usage, reading (dose assessment) and zeroing. The licensee does not use non-NVLAP accredited passive dosimeters.

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

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

b. Findings

Introduction: The inspectors identified that the licensee's use of dosimeters (TLDs) may not be consistent with the methods used by the NVLAP accreditation process. As a result, the inspectors identified an Unresolved Item (URI) for the apparent non-compliance with 10 CFR 20.1501(c)(2) because the accreditation process for the types of radiation included in the NVLAP program may not approximate the types of radiations for which the individual wearing the dosimeter is monitored.

Discussion: The licensee uses a vendor to supply and process dosimeters used to measure radiation exposure for the monitored workers. This vendor is NVLAP accredited for beta, gamma, neutron, mixture of beta/gamma, and mixture neutron/gamma radiations. However, the licensee uses the dosimeters when workers may be exposed to beta, gamma, and neutron radiations within the same monitoring period. The inspectors determined that this mixture of three radiation types may not be aligned with the accreditation process. The licensee concluded that since the processor was accredited for all three types of radiation, the dosimeter could be used when all three types are encountered during the same monitoring period. During the inspection, the licensee contacted the dosimeter processor for clarification. The licensee indicated that the dosimeter processor makes some assumptions of the types of radiation that the worker was exposed to and selects an appropriate algorithm for processing the dosimeter. These assumptions consider whether the reactor is creating power, therefore creating neutron radiation. The inspectors agreed that workers are not generally exposed to neutron radiation during periods when the reactor is not creating power. However, the licensee's program does not require a dosimeter change when the reactor is shut down for maintenance or when the reactor is returned to power. This created a condition where the same dosimeter could be used in a manner that is not consistent with the methods described by the dosimeter processor.

The issue remains under review by the NRC pending completion of the licensee's testing and evaluation of dosimeters exposed to all three types of radiation. The issue is categorized as a URI pending completion of that revised evaluation and the NRCs review of it (URI 05000255/2010004-06 Use of TLDs May Not Be Consistent With the Methods Used by the NVLAP Accreditation Process).

.3 Internal Dosimetry (02.03)

Routine Bioassay (In-Vivo)

a. Inspection Scope

The inspectors reviewed procedures used to assess the dose from internally deposited nuclides using whole body counting equipment. The inspectors evaluated whether the procedures addressed methods for differentiating between internal and external contamination, the release of contaminated individuals, the route of intake and the assignment of dose.

The inspectors reviewed the whole body count process to determine if the frequency of measurements was consistent with the biological half-life of the nuclides available for intake.

The inspectors reviewed the licensee's evaluation for use of its portal radiation monitors as a passive monitoring system to determine if instrument minimum detectable activities were adequate to determine the potential for internally deposited radionuclides sufficient to prompt additional investigation.

The inspectors selected several whole body counts and evaluated whether the counting system used had sufficient counting time/low background to ensure appropriate sensitivity for the potential radionuclides of interest. The inspectors reviewed the radionuclide library used for the count system to determine its appropriateness. The inspectors evaluated whether any anomalous count peaks/nuclides indicated in each

output spectra received appropriate disposition. The inspector's reviewed the licensee's 10 CFR Part 61 data analyses to determine whether the nuclide libraries included appropriate gamma-emitting. The inspectors evaluated how the licensee accounts for hard-to-detect nuclides in the dose assessment.

b. Findings

No findings were identified.

Special Bioassay (In-Vitro)

a. Inspection Scope

There were no internal dose assessments obtained using in-vitro monitoring for the inspectors to review. The inspectors reviewed and assessed the adequacy of the licensee's program for in vitro monitoring (i.e., urinalysis and fecal analysis) of radionuclides (tritium, fission products, and activation products), including collection and storage of samples.

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

b. Findings

No findings were identified.

Internal Dose Assessment – Whole Body Count Analyses

a. Inspection Scope

The inspectors reviewed several dose assessments performed by the licensee using the results of whole body count analyses. The inspectors determined whether affected personnel were properly monitored with calibrated equipment and that internal exposures were assessed consistent with the licensee's procedures.

b. Findings

No findings were identified.

.4 Special Dosimetric Situations (02.04)

Declared Pregnant Workers

a. Inspection Scope

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

The inspectors selected individuals who had declared pregnancy during the current assessment period and evaluated whether the licensee's radiological monitoring program (internal and external) for declared pregnant workers is technically adequate to

assess the dose to the embryo/fetus. The inspectors reviewed exposure results and monitoring controls employed by the licensee and with respect to the requirements of 10 CFR Part 20.

b. Findings

No findings were identified.

Shallow Dose Equivalent

a. Inspection Scope

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

b. Findings

No findings were identified.

Neutron Dose Assessment

a. Inspection Scope

The inspectors evaluated the licensee's neutron dosimetry program, including dosimeter types and/or survey instrumentation.

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

b. Findings

No findings were identified.

Assigning Dose of Record

a. Inspection Scope

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

b. Findings

No findings were identified.

.5 Problem Identification and Resolution (02.05)

a. Inspection Scope

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

b. Findings

No findings were identified.

3. OTHER ACTIVITIES

40A1 Performance Indicator Verification (71151)

.1 Mitigating Systems Performance Index - Emergency Alternating Current Power System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI) - Emergency AC Power System performance indicator for the period of the third quarter of 2009 through the second quarter of 2010. To determine the accuracy of the Performance Indicator (PI) data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, dated October 2009, were used. The inspectors reviewed the licensee's operator narrative logs, MSPI derivation reports, condition reports, and event reports for the period of the third quarter of 2009 through the second quarter of 2010 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's condition report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI emergency AC power system sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.2 Mitigating Systems Performance Index - Residual Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - Residual Heat Removal System performance to determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, dated October 2009, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC Integrated Inspection Reports for the period of July 2009 through June 2010 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI residual heat removal system sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.3 Reactor Coolant System Specific Activity

a. Inspection Scope

The inspectors sampled licensee submittals for the Reactor Coolant System (RCS) Specific Activity performance indicator for the period of April 2009 through June 2010. The inspectors used PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, dated October 2009, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's RCS chemistry samples, TS requirements, issue reports, event reports, and NRC Integrated Inspection Reports for the period of April 2009 through June 2010 to determine if indicator results were accurately reported. Documents reviewed are listed in the Attachment to this report

This inspection constituted one reactor coolant systems specific activity sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.4 Occupational Exposure Control Effectiveness

a. Inspection Scope

The inspectors sampled licensee submittals for the Occupational Radiological Occurrences performance indicator for the period of April 2009 through June 2010. The

inspectors used PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, dated October 2009, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed electronic dosimetry dose rate and accumulated dose alarm and dose reports and the dose assignments for any intakes that occurred for selected dates between April 2009 and June 2010 to determine if indicator results were accurately reported. The inspectors also conducted walk downs of numerous locked high and very high radiation area entrances to determine the adequacy of the controls in place for these areas. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one occupational radiological occurrences sample as defined in IP 71151-05.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors sampled licensee submittals for the Radiological Effluent Technical Specification (RETS)/Offsite Dose Calculation Manual (ODCM) Radiological Effluent Occurrences performance indicator for the period of April 2009 through June 2010. The inspectors used PI definitions and guidance contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, dated October 2009, to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's issue report database and selected individual reports generated since this indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous effluent summary data and the results of associated offsite dose calculations for selected dates between April 2009 and June 2010 to determine if indicator results were accurately reported. The inspectors also reviewed the licensee's methods for quantifying gaseous and liquid effluents and determining effluent dose. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one RETS/ODCM radiological effluent occurrences 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 that 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 follow-up, the inspectors performed a daily screening of items entered into the licensee's CAP. This review was accomplished through inspection of the station's daily condition report packages.

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

b. Findings

No findings were identified.

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

.1 (Closed) Licensee Event Report 2010-001-00, Potential Loss of Safety Function Due to a Service Water Pump Shaft Coupling Failure

On September 29, 2009, one of the shaft couplings on the P-7C service water pump failed, rendering the pump inoperable. Licensee efforts to correct the issue involved a request for a Notice of Enforcement Discretion (NOED) that was approved by the NRC. However, the pump was restored to operable status prior to the period of enforcement discretion. The licensee determined the cause of the failure to be improper heat treatment of the coupling due to poor vendor control of the manufacturing process. The inspectors reviewed the LER and determined that the 60-day reporting requirement of 10 CFR 50.73 was not met. Specifically, shortly after the event the licensee had reasonable information as described in NUREG-1022, "Event Reporting Guidelines for 10 CFR 50.72 and 50.73," that there was likely a loss of safety function based on the particular failure mechanism. However, the licensee did not start the 'clock' for reportability until January 19, 2010. The licensee submitted the LER on March 19, 2010.

The inspectors reviewed the NRC Enforcement Policy and determined that this failure to comply with the 10 CFR 50.73 a(1) timeliness requirements constituted a violation of minor significance that is not subject to enforcement action, because it had minimal impact on the regulatory process. However, it is included as an example in the finding for a separate 10 CFR 50.72 reportability issue described in part 1R15 of this report.

An issue regarding the completeness and accuracy of information provided during the NOED call between the licensee and NRC is being tracked as unresolved item (URI) 2009005-01.

Documents reviewed as part of this inspection are listed in the attachment. This LER is closed.

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

4OA5 Other Activities

.1 Review of Liquid Rad-waste Incident Description

- a. Introduction: The inspectors identified an Unresolved Item regarding the licensee's description of liquid waste incidents in the UFSAR. Specifically, Section 14.20 of the UFSAR does not accurately describe tank T-91 and does not discuss how T-91 meets the license of the facility.

Discussion: During review of radioactive effluents, the inspectors identified an unresolved item regarding the description of the liquid waste incident in UFSAR Section 14.20. The UFSAR states that a radioactive liquid leak or spill will be retained within the facility or within 10 CFR 20 limits. Liquid storage tank T-91 often contains tritiated liquid with concentrations greater than the Part 20 effluent limit of .001 uCi/ml. Therefore, the Chapter 14 accident analysis does not accurately reflect the operation of the tank. The inspectors reviewed NUREG-0800, rev. 2 for guidance on acceptable accident analysis for radioactive liquid accidents. NUREG-0800 establishes acceptance criteria to limit releases during tank failures to Part 20 limits at the nearest potable water well or unrestricted area. NUREG-0800 also accepts the use of special systems to meet

these limits. Since the design and construction of Palisades pre-dates NUREG-0800, this criteria may not apply. However, 10 CFR 50.71 establishes criteria for maintaining the UFSAR up to date. Therefore, the inspectors concluded that the UFSAR should describe how tank T-91 meets the facility license. Since the basis for the acceptability of tank T-91 is not clear, the inspectors could not determine whether the licensee meets regulatory requirements nor can the inspectors assess the significance of an associated performance deficiency. There is no current safety concern because the tank activity would be significantly diluted. In addition, if elevated activity was detected, mitigative action could be taken to reduce ingested quantities to meet the requirements of 10 CFR 20. Therefore, until the license requirements can be determined, the NRC will treat this issue as an unresolved item. (URI 05000255/2010004-07)

4OA6 Management Meetings

.1 Exit Meeting Summary

On October 1, 2010, the inspectors presented the inspection results to C. Schwarz and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors confirmed that none of the potential report input discussed was considered proprietary.

.2 Interim Exit Meetings

Interim exits were conducted for:

- The results of Occupational Dose Assessment inspection with the Site Vice President, Mr. C Schwarz, on September 3, 2010.
- Discussion of final cross-cutting aspect for NCV 05000255/2010004-005 with the Plant General Manager on October 27, 2010

The inspectors confirmed that none of the potential report input discussed was considered proprietary.

4OA7 Licensee-Identified Violations

The following violations of very low safety significance (Green) were identified by the licensee and were violations of NRC requirements which meet the criteria of Section 2.3.2 of the NRC Enforcement Policy for being disposed as NCVs.

- 10 CFR 50, Appendix B, requires that activities affecting quality shall be performed in accordance with procedures. Contrary to this required, on or before June 21, 2010, the licensee positioned the voltage check relay for the 1-2 diesel generator without use of a procedure. This rendered the 1-2 diesel inoperable. Technical Specification 3.8.1 requires, in part, that two qualified diesels be operable. Because of the improper relay position, during a scheduled surveillance the output breaker did not close as required to place the diesel on the emergency bus. The licensee performed an apparent cause on the failure and determined that the cutout relay had been inadvertently repositioned due to the lack of a protective device on the relay to preclude inadvertent operation. The licensee could not determine when the relay had been repositioned. The inspectors reviewed the apparent cause evaluation and could not find firm

evidence that indicated when the relay had been repositioned. Therefore, the inspectors evaluated the safety significance with a duration from the time of discovery until the diesel was restored to operable. Since the inoperability lasted less than the TS allowed outage time, the inspectors concluded the finding was of very low safety significance. The inspectors concluded that the finding was licensee identified because the licensee identified the issue during surveillance testing. As corrective action, the licensee restored the relay to its correct position and successfully tested the diesel. The licensee performed a walkdown of other relay cutout switches and no others were found in an improper position. The licensee documented the condition in CR-PLP-2010-02431.

- License Condition 2.C(3) requires, in part, that the licensee shall implement and maintain in effect all provisions of the approved fire protection program as described in the Final Safety Analysis Report for the facility. The objectives of Fire Protection Program procedure, EN-DC-330, include ensuring that fire protection features credited in the Fire Protection Program analyses are inspected, tested, and maintained such that they will perform their design functions. Contrary to these requirements, on December 17, 2009, maintenance was performed on the P-9B diesel fire pump which caused the pump to fail during testing approximately 6 months later. Specifically, as part of the effort to correct an issue with the fuel pump gearbox, the routing of the flexible shaft from the gearbox to the overspeed switch was altered such that it created stresses which resulted in premature failure during testing. The finding screened as Green in IMC 0609 Appendix F, Fire Protection Significance Determination Process, based on an assignment of low degradation in the fixed fire suppression systems category. Specifically, redundant fire protection pumps were available to perform the functions of P-9B. The licensee documented the issue in CR-PLP-2010-2334.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

M. Anderson, System Engineer
P. Anderson, Licensing Manager
S. Andrews, Senior Chemistry Specialist
V. Beilfuss, Project Manager
A. Blind, Engineering Director
T. Davis, Regulatory Compliance
B. Dotson, Regulatory Compliance
J. Fontaine, Senior Emergency Planning Coordinator
T. O'Leary, Corrective Action Manager
M. Ginzel, Radiation Protection
J. Hagar, Technical Specialist, Engineering Programs
D. Hamilton, Nuclear Safety Assurance Director
B. Kemp, Energy/Design Engineering Manager
T. Kirwin, Plant General Manager
S. Martin, Operations Initial Training Supervisor
M. McCarty, System Engineer
D. Mihalik – Health Physicist
C. Schwarz, Site Vice president
T. Shewmaker, Chemistry Manager
C. Sherman, Radiation Protection Manager
M. Sicard, Operations Manager
G. Sleeper, Assistant Operations Manager

Nuclear Regulatory Commission

R. Orlikowski, Chief, Reactor Projects Branch 4
L. Kozak, Senior Risk Analyst

LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

05000255/2010004-01	NCV	Failure to Perform an Adequate Risk Assessment for Maintenance Activities (1R13)
05000255/2010004-02	NCV	Failure to Complete Actions Required by LCO 3.0.3 and 3.3.1 (1R15)
05000255/2010004-03	NCV	Failure to Make 8 hour Report Pursuant to 10 CFR 50.72 (1R15)
05000255/2010004-04	NCV	Failure to Ensure Code Requirements Met When Performing VT-2 Exams (R19)
05000255/2010004-05	NCV	Ground on Preferred AC Bus due to Improperly Installed Electrical Bushing (1R19)
05000255/2010004-06	URI	Use of TLDs May Not Be Consistent With the Methods Used by the NVLAP Accreditation Process (2RS4)
05000255/2010004-07	URI	Description of Liquid Waste Incidents (4OA5)

Closed

05000255/2010004-01	NCV	Failure to Perform an Adequate Risk Assessment for Maintenance Activities (1R13)
05000255/2010004-02	NCV	Failure to Complete Actions Required by LCO 3.0.3 and 3.3.1 (1R15)
05000255/2010004-03	NCV	Failure to Make 8 hour Report Pursuant to 10 CFR 50.72 (1R15)
05000255/2010004-04	NCV	Failure to Ensure Code Requirements Met When Performing VT-2 Exams (R19)
05000255/2010004-05	NCV	Ground on Preferred AC Bus due to Improperly Installed Electrical Bushing (1R19)
05000255/2010-001-00	LER	Potential Loss of Safety Function Due to a Service Water Pump Shaft Coupling Failure (4OA3)

Discussed

05000255/2009005-01	URI	NOED for Repair to service Water Pump P-7C(4OA3)
---------------------	-----	--

LIST OF DOCUMENTS REVIEWED

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

1R04 Equipment Alignment

- CAP 039882, Service water expansion joint being worn by bolt, February 8, 2004
- CR-PLP-2008-00082, Nuts and studs digging into expansion joint, January 8, 2008
- CR-PLP-2009-04457, No screen for floor drain piping above the 1-1 emergency diesel generator, September 29, 2009
- CR-PLP-2010-00428, Components on EDG 1-1 missing tags, January 31, 2010
- CR-PLP-2010-01424, Exhaust room leaking water into 1-1 EDG space, April 6, 2010
- CR-PLP-2010-01452, MV-DE141 found out of position, April 7, 2010
- Drawing M-208, Sheet 1A, Service Water System, Revision 59
- EPS-E-11, Diesel Generator Inspection, Revision 1
- SC-90-153, Service water piping is offset, add 7/8" offset expansion joint
- SOP-12, Feedwater System, Revision 57
- SOP-22, Emergency Diesel Generators, Revision 47
- SOP-24, Ventilation and Air Conditioning System, Revision 55
- SOP-4, Containment Spray System, Revision 24

1R05 Fire Protection

- CR-PLP-2009-05812, While performing post-maintenance testing on P-9B, there were multiple issues, December 17, 2009
- CR-PLP-2010-02334, P-9B ceased operation during the monthly performance of MO-7B testing, June 11, 2010
- EN-DC-330, Fire Protection Program, Revision 0
- FPSP-SO-4, Fire Suppression Water System Post Indicator Valve Operation, Revision 1
- Palisades Nuclear Plant Fire Hazards Analysis, Revision 7

1R06 Flood Protection Measures

- DBD 7.08, Plant Protection Against Flooding, Revision 5

1R11 Licensed Operator Requalification program

- Simulator Exam Scenario PLSXM-OPS-105

1R12 Maintenance Effectiveness

- CR-PLP-2009-01237, Following T-370 control rod testing, attempted to trip the reactor from EC-06 panel and only one RPS breaker tripped, March 23, 2009
- CR-PLP-2010-00190, Out of tolerance final data during performance of RI-23B, January 14, 2010
- CR-PLP-2010-01871, RPS Trip unit not within final tolerance, May 4, 2010
- CR-PLP-2010-02351, Received B-Channel variable high power trip and pre-trip alarms unexpectedly, June 13, 2010

- CR-PLP-2010-02872, Aux Relay ATWS1 indicating light was found extinguished, July 13, 2010
- CR-PLP-2010-03665, Based on NRC question, the turbine protective circuit may be susceptible to an over-current condition caused by light-bulb failure, August 30, 2010
- EGAD-EP-10, Palisades Maintenance Rule Scoping Document, Revision 5
- LER 2006-005-01, Calvert Cliffs Unit 2, Startup Rate Trip Bypass Removal Function Below Setpoint, May 29, 2007
- RI-99, Left Channel Nuclear Instrumentation Calibrations, Revision 10
- WO 188138, 42-2/RPS failed to trip from EC-06 panel

1R13 Maintenance Risk Assessments and Emergent Work Control

- Admin 4.02, Control of Equipment, Revision 54
- DBD 1.03, Auxiliary Feedwater System, Revision 7
- DBD 7.08, Protection From Flooding, Revision 6
- EN-WM-104, On Line Risk Assessment, Revision 2
- UFSAR Section 5.4, Water Level Design, Revision 24

1R15 Operability Evaluations

- CR-PLP-2010-02367, Rotor lamination fingers found in bottom of P-8A Auxiliary Feedpump Motor, July 14, 2010
- CR-PLP-2010-03005, Pressurizer heater amps have lowered to 111A, July 22, 2010
- Drawing E-254, Pressurizer Heater Control, Revision 8
- ODMI (Operational Decision-Making Issue) on Pressurizer Heater Capacity, July 21, 2010
- CR-PLP-2007-01005, CV-0821 Internal Trim is Incorrect, March 5, 2007
- CR-PLP-2006-01468, CV-0821 Would Not Close, April 3, 2006
- CR-PLP-2010-02160, POC-0821 Missing hardware, May 27, 2010
- CR-PLP-2010-03568, ED-205 Bus Deenergized, August 24, 2010

1R19 Post Maintenance Testing

- CAD Drawing VEN\M1\M1-Q1194, VHPT Auxiliary Trip Unit and RWP Logic
- CAD Drawing VEN\M1\M1-Q4012, VHPT Auxiliary Trip Unit
- CAD Drawing VEN\M1\M1-Q4017, Rod Withdrawal Prohibit Logic
- CEP-NDE-0902, VT-2 Examination, Revision 7
- CRD-M-31, Rebuilding and Testing of CRDM Seal Housing Assemblies, Revision 15
- CR-PLP-2010-02899, Observation that cables for secondary position indication, the CRDMs, and thermocouple cables not routed currently as was shown in original construction photograph, July 14, 2010
- CR-PLP-2010-03234, Coil wires for SV-1698 bare as a result of loose pipe thread bushing, August 4, 2010
- CR-PLP-2010-03756, Contrary to both the Code and site procedure requirements, it was identified that Operations personnel are performing VT-2 examinations without verifying they have adequate illumination per ASME Section XI IWA-2210, September 2, 2010
- CR-PLP-2010-04178, Rely K5 vice K13 found failed in auxiliary trip unit
- DWO-1, Operators Daily/Weekly Items, Mode 1-4, Revision 85
- EC 16676, Re-anchor P-41 and Reanalyze Fire Protection Piping for CPCo Design Classification
- EM-09-14, VT-2 Examinations, Revision 7
- Erratum to ASME Boiler and Pressure Vessel Code Section XI, 2003 Addenda, December, 2003

- LP PL-N90013, Visual Examination Level 2 Certification, Revision 7
- RO-22, Control Rod Drop Times, Revision 20
- WO 00159200, Pressure Relief Valve Seating Surface Degraded
- WO 199146, Rebuild/Test of spare CRD seal housings
- WO 214087, CRD-22 is indicating elevated leakoff temperature after QO-34
- WO 245881, Locate Ground on EY-20, August 2, 2010
- WO 251426,
- WO 52204589, P-41 Right Angle Drive Oil Change
- WO 52215736, Diesel Fire Pump Day Tank PM
- WO 52250080, MO-7B-41 for Fire Water Pump P-41

1R20 Outage Activities

- CR-PLP-2010-02869, Worker exceeded 72 hours in 7 days, contrary to EN-OM-123, July 13, 2010
- Electrical maintenance work schedule, June-July 2010
- EN-OM-123, Fatigue Management Program, Revision 2
- Mechanical maintenance work schedule, June-July 2010
- Operations work schedule, June-July 2010
- Outage Risk Assessment Report for RFO 21, August 9-13

1R22 Surveillance Testing

- ADMIN 4.02, Control of Equipment, Revision 54
- ASME OM Code, 2001, Addenda through August 2003
- CR-PLP-2010-03255, NRC Questioned IST Engineer about basis for lower differential pressure acceptance criteria, August 5, 2010
- CR-PLP-3200, Loose Missing Siding on Containment Dome, August 3, 2010
- CR-PLP-3224, Lightning Rod Bolts Missing, August 4, 2010
- CR-PLP-3245, Concrete Cracking on Containment Roof Trolley Rail Pedestals, August 5, 2010
- DBD-2.02, Design Basis Document for High Pressure Safety Injection System, Revision 9
- EA-DMK-99-001, Revised Minimum Acceptable HPSI Pump Surveillance Test Differential Pressure
- ODMI on PCS Leakage into 'C' safety injection tank
- QO-15, Inservice Test Procedure-Component Cooling Water Pumps, Revision 28
- QO-19, HPSI Pumps and ESS Check Valve Operability Test Basis Document, Revision 20
- SOP-22, Emergency Diesel Generators, Revision 47
- WO 52230585, QO-15A-P-52A ISI Test
- WO 52231994, QO-19B-Hi Press Safety Injection Pump and Check Valve Operability

1EP6 Drill Evaluation

- NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 6
- Palisades EP Drill Package, July 21, 2010

2RS4 Occupational Dose Assessment

- ANSI/HPS N13.11-2001, Personnel Dosimetry Performance – Criteria for Testing, July 31, 2001
- Certificate of Accreditation to ISO/IEC 17025:2005, NVLAP Code: 100555-0, Global Dosimetry Solutions, July 1, 2009 through June 30, 2010

- Certificate of Accreditation to ISO/IEC 17025:2005, NVLAP Code: 100555-0, Mirion Technologies (GDS), Inc., July 1, 2010 through June 30, 2011
- CR-PLP-2009-01463, Electronic Dosimeter Failure, March 30, 2009
- CR-PLP-2009-02455, The Dosimeter of Legal Records to electronic Dosimeter Comparison Was Found to be Outside of Normal Performance Parameters, August 25, 2009
- CR-PLP-2009-04414, EAD Screen Was Blank During Use, September 24, 2009
- CR-PLP-2009-05448, The Ration Between the Actual TLD reading and the Real time EAD Readings Has Changed Over the Previous 2 Monitoring Periods, April 30, 2010
- EN-RP- 208, Whole Body Counting / In-Vitro Bioassay, Revision 3
- EN-RP-131, Air Sampling, Revision 8
- EN-RP-201, Dosimetry Administration, Revision 3
- EN-RP-202, Personnel Monitoring, Revision 7
- EN-RP-203, Dose Assessment, Revision 4
- EN-RP-206, Dosimeter of Legal Record Quality Assurance, Revision 3
- HP 2.28, Miscellaneous Dosimetry Areas, Revision 30
- LO-PLPLO-2008-0212, 209 External Dosimetry Focused Self-Assessment, October 24, 2009
- National Institute of Standards and Technology, National Voluntary Laboratory Accreditation Program (NVLAP), On-Site Assessment Report, NVLAP Lab Code 100555-0, Mirion Technologies (GDS) Inc., January 21, 2010
- TID-2010-001, Palisades 2009 Contamination Characterization, January 28, 2010

40A1 Performance Indicator Verification

- CR-PLP-2009-04394, Received alarm EK-0560, diesel generator day tank unexpectedly, September 21, 2009
- CR-PLP-2009-05592, Short occurred during wavebook connection to 1-1 EDG, December 7, 2009
- CR-PLP-2010-01071, Bus 1D under-voltage relay 127-2YZ was found out-of-tolerance, March 15, 2010
- DWC-2; PCS Radiochemistry Analysis; Revision 12
- NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 6
- NRC Indicator data packages July 2009 thru June 2010
- NRC Indicator Occupational Exposure Control Effectiveness (OR-1), July 8, 2009
- NRC Indicator Occupational Exposure Control Effectiveness (OR-1), October 14, 2009
- NRC Indicator Occupational Exposure Control Effectiveness (OR-1), April 7, 2010
- NRC Indicator Occupational Exposure Control Effectiveness (OR-1), July 7, 2010
- NRC Indicator Reactor Coolant System (RCS) Specific Activity (BI-01), July 1, 2009
- NRC Indicator Reactor Coolant System (RCS) Specific Activity (BI-01), October 10, 2009
- NRC Indicator Reactor Coolant System (RCS) Specific Activity (BI-01), January 5, 2010
- NRC Indicator Reactor Coolant System (RCS) Specific Activity (BI-01), April 6, 2010
- NRC Indicator Reactor Coolant System (RCS) Specific Activity (BI-01), July 13, 2010
- NRC Indicator RETS/ODCM Radiological Effluent Occurrence (PR-01), July 6, 2009
- NRC Indicator RETS/ODCM Radiological Effluent Occurrence (PR-01), October 8, 2009
- NRC Indicator RETS/ODCM Radiological Effluent Occurrence (PR-01), January 5, 2010
- NRC Indicator RETS/ODCM Radiological Effluent Occurrence (PR-01), April 20, 2010
- NRC Indicator RETS/ODCM Radiological Effluent Occurrence (PR-01), July 13, 2010
- Palisades MSPI Basis Document, June 26, 2008
- Various Operations Logs, Third Quarter 2009 thru Second Quarter 2010

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

- CR-PLP-2009-04519, Received Alarm EK-1149, Service Water Standby Pump Running, September 29, 2009
- Palisades LER 2010-001, Potential Loss of Safety Function due to a Service Water Pump Shaft Coupling Failure, March 19, 2010
- Part 21 Report 2009-29-00, Hydroaire Services Inc., Pump Shaft Coupling Failure

4OA5 Other Activities

- UFSAR, Chapter 14.20, Liquid Waste Incident, revision 28

LIST OF ACRONYMS USED

AC	Alternating Current
ADAMS	Agencywide Document Access Management System
AFW	Auxiliary Feedwater
ASME	American Society of Mechanical Engineers
CAP	Corrective Action Program
CCDP	Conditional Core Damage Probability
CRDM	Control Rod Drive Mechanism
HVAC	Heating, Ventilation and Air Conditioning
IMC	Inspection Manual Chapter
IP	Inspection Procedure
LCO	Limiting Condition for Operations
LER	Licensee Event Report
MSPI	Mitigating System Performance Index
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NOED	Notice of Enforcement Discretion
NRC	U.S. Nuclear Regulatory Commission
NVLAP	National Voluntary Laboratory Accreditation Program
ODCM	Offsite Dose Calculation Manual
PARS	Publicly Available Records System
PI	Performance Indicator
RETS	Radiological Effluent Technical Specification
RCS	Reactor Coolant System
RPS	Reactor Protection System
SDP	Significance Determination Process
SL	Severity Level
SRA	Senior Risk Analyst
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	Unresolved Item

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records System (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Website 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 05000255/2010004;
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

DOCUMENT NAME: G:\DRPIII\PAL\PAL 2010 004.docx

Publicly Available Non-Publicly Available Sensitive Non-Sensitive

To receive a copy of this document, indicate in the concurrence box "C" = Copy without attach/encl "E" = Copy with attach/encl "N" = No copy

OFFICE	RIII							
NAME	JGiessner:ntp							
DATE	10/08/10							

OFFICIAL RECORD COPY

Letter to C. Schwarz from J. Giessner dated November 8, 2010.

SUBJECT: PALISADES NUCLEAR PLANT INTEGRATED INSPECTION
REPORT 05000255/2010004

DISTRIBUTION:

Daniel Merzke

RidsNrrPMPalisades

RidsNrrDorLpl3-1 Resource

RidsNrrDirslrib Resource

Steven West

Steven Orth

Jared Heck

Allan Barker

Carole Ariano

Linda Linn

DRPIII

DRSIII

Patricia Buckley

Tammy Tomczak

[ROPreports Resource](#)