



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**

REGION III  
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August 5, 2010

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

SUBJECT: PALISADES NUCLEAR PLANT INTEGRATED INSPECTION  
REPORT 05000255/2010003

Dear Mr. Schwarz:

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

This 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, no findings of significance were identified.

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

Sincerely,

**/RA/**

Robert J. Orlikowski, Acting Chief  
Branch 4  
Division of Reactor Projects

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

Enclosure: Inspection Report 05000255/2010003  
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-255

License No: DPR-20

Report No: 05000255/2010003

Licensee: Entergy Nuclear Operations, Inc.

Facility: Palisades Nuclear Plant

Location: Covert, MI

Dates: April 1, 2010, to June 30, 2010

Inspectors: J. Ellegood, Senior Resident Inspector  
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Approved by: R. Orlikowski, Acting Chief  
Branch 4  
Division of Reactor Projects

Enclosure

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## **SUMMARY OF FINDINGS**

IR 05000255/2010003; 4/01/2010 – 6/30/2010; Palisades Power Plant; Integrated Inspection Report. The inspection was conducted by resident and regional inspectors. The report covers a 3-month period of resident inspection. No findings of significance were identified. 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 July 2006.

### **A. NRC-Identified and Self-Revealed Findings**

No findings of significance were identified.

### **B. Licensee-Identified Violations**

None.

## REPORT DETAILS

### Summary of Plant Status

The plant began the inspection period at 100 percent power. On April 15, the licensee reduced power to 35 percent to repair a leak on an extraction steam line. The licensee returned to 100 percent power on April 17. On June 24, the licensee performed a normal reactor shutdown to repair a control rod drive mechanism. The plant remained shut down for the remainder of the inspection period.

### 1. REACTOR SAFETY

#### **Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity**

#### 1R01 Adverse Weather Protection (71111.01)

##### .1 Readiness of Offsite and Alternate AC Power Systems

##### a. Inspection Scope

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

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

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

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

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

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

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

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

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

- service water system with 'B' pump out-of-service; and
- diesel generator 1-2 while diesel generator 1-1 was out-of-service.

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

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

b. Findings

No findings of significance were identified.

.2 Semi-Annual Complete System Walkdown

a. Inspection Scope

On June 14, 2010, the inspectors performed a complete system alignment inspection of the auxiliary feedwater 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 WOs was performed to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the CAP database to ensure that system equipment alignment problems were being identified and appropriately resolved. Documents reviewed are listed in the Attachment.

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

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Routine Resident Inspector Tours (71111.05Q)

a. Inspection Scope

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

- cable spreading room;
- containment;
- emergency diesel generator (EDG) 1-1; and
- C switchgear room.

The inspectors reviewed areas to assess if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, maintained passive fire protection features in good material condition, and implemented adequate compensatory measures for out of service, degraded or inoperable fire protection equipment, systems, or features in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to impact equipment which could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the Attachment, 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 of significance were identified.

.2 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On April 7, 2010 the inspectors observed fire brigade activation during a fire drill. Based on this observation, the inspectors evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that the licensee staff identified deficiencies; openly discussed them in a self-critical manner at the drill debrief, and took appropriate corrective actions. Specific attributes evaluated were: (1) proper wearing of turnout gear and self-contained breathing apparatus; (2) proper use and layout of fire hoses; (3) employment of appropriate fire-fighting techniques; (4) sufficient firefighting equipment brought to the scene; (5) effectiveness of fire brigade leader communications, command, and control; (6) search for victims and propagation of fire into other plant areas; (7) smoke removal operations; (8) utilization of pre-planned strategies; (9) adherence to the pre-planned drill scenario; and (10) drill objectives.

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

b. Findings

No findings of significance 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(s) 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:

- auxiliary feedwater pump room

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

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07T)

a. Inspection Scope

The inspectors reviewed operability determinations, completed surveillances, vendor manual information, associated calculations, performance test results and cooler inspection results associated with the E-22B EDG 1-2 Jacket Water cooler and the E-31A EDG 1-1 Lube Oil cooler. These coolers were chosen based on their risk significance in the licensee's probabilistic safety analysis, their important safety-related mitigating system support functions, and their relatively low margin.

For the E-22B EDG 1-2 Jacket Water cooler and the E-31A EDG 1-1 Lube Oil cooler, the inspectors reviewed the methods and results of heat exchanger performance inspections. The inspectors verified the methods used to inspect and clean heat exchangers were consistent with as-found conditions identified and expected degradation trends and industry standards, the licensee's inspection and cleaning activities had established acceptance criteria consistent with industry standards, and the as-found results were recorded, evaluated, and appropriately dispositioned such that the as-left condition was acceptable.

In addition, the inspectors verified the condition and operation of the E-22B EDG 1-2 Jacket Water cooler and the E-31A EDG 1-1 Lube Oil cooler were consistent with design assumptions in heat transfer calculations and as described in the Updated Final Safety Analysis Report. This included verification that the number of plugged tubes was within pre-established limits based on capacity and heat transfer assumptions. The inspectors verified the licensee evaluated the potential for water hammer and established adequate controls and operational limits to prevent heat exchanger degradation due to excessive flow-induced vibration during operation. In addition, visual inspection records were reviewed to determine the structural integrity of the heat exchanger.

The inspectors also verified the performance of the ultimate heat sink and its subcomponents such as piping, intake screens, pumps, valves, etc., by tests or other equivalent methods to ensure availability and accessibility to the in plant cooling water systems.

The inspectors reviewed the licensee's operation of service water system and ultimate heat sink. This included the review of licensee's procedures for a loss of the service water system and the ultimate heat sink and the verification that instrumentation, which is relied upon for decision making, was available and functional. In addition, the inspectors verified that macro-fouling was adequately monitored, trended, and controlled

by the licensee to prevent clogging. The inspectors verified that licensee's biocide treatments for biotic control were adequately conducted and the results monitored, trended, and evaluated. The inspectors also reviewed strong pump-weak pump interaction and design changes to the service water system and the ultimate heat sink. The inspectors also verified that the licensee has maintained adequate pH, calcium hardness, etc.

The inspectors performed a system walkdown of the service water system to verify the licensee's assessment on structural integrity. In addition, the inspectors reviewed available licensee's testing and inspection results to identify any adverse trends since the last NRC inspection. Inspectors reviewed the licensee's available pipe wall inspection data and history and confirmed that no through wall pipe leakage has been identified. For buried or inaccessible piping, the inspectors reviewed the licensee's recently issued pipe testing, inspection, and monitoring program to verify structural integrity, however, a complete review of program implementation was not performed due to the program not being fully implemented at the time of the inspection.

In addition, the inspectors reviewed condition reports related to the coolers and heat sink performance issues to verify that the licensee had an appropriate threshold for identifying issues and to evaluate the effectiveness of the corrective actions. The documents that were reviewed are included in the Attachment to this report.

These inspection activities constituted three heat sink inspection samples as defined in IP 71111.07-05.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification Program (71111.11)

a. Inspection Scope

On May 4, 2010, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator regualification 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 of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

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

- fuel handling system; and
- pressurizer pressure control system.

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

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

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

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

b. Findings

No findings of significance 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:

- steam leak repairs on extraction steam line;
- yellow risk due to service water pump P-7B replacement; and
- replacement of 'A' auxiliary feed pump motor.

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 three samples as defined in IP 71111.13-05.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- containment cooling due to train definition; and
- service water pumps due to ventilation.

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 two samples as defined in IP 71111.15-05.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

The inspectors reviewed the following temporary modification(s):

- cutout of sudden pressure relay actuation on various transformers

The inspectors compared the temporary configuration changes and associated 10 CFR 50.59 screening and evaluation information against the design basis, the UFSAR, and the TS, as applicable, to verify that the modification did not affect the operability or availability of the affected system(s). The inspectors also compared the licensee's information to operating experience information to ensure that lessons learned from other utilities had been incorporated into the licensee's decision to implement the temporary modification. The inspectors, as applicable, performed field verifications to ensure that the modifications were installed as directed; the modifications operated as expected; modification testing adequately demonstrated continued system operability, availability, and reliability; and that operation of the modifications did not impact the operability of any interfacing systems. Lastly, the inspectors discussed the temporary modification with operations, engineering, and training personnel to ensure that the individuals were aware of how extended operation with the temporary modification in place could impact overall plant performance. Documents reviewed in the course of this inspection are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

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

- alternate hot-shutdown panel maintenance;
- steam leak repairs on extraction steam line;
- service water pump p-7b following replacement;

- battery charger #2 overhaul;
- 1-1 EDG maintenance outage and governor replacement; and
- emergent replacement of 'A' auxiliary feedwater pump motor.

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

b. Findings

No findings of significance were identified.

1R20 Outage Activities (71111.20)

a. Inspection Scope

The inspectors evaluated outage activities for a forced outage that began on June 24, 2010, and continued through the reactor startup on July 2, 2010. 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. The licensee entered the forced outage due to rapidly increasing control rod drive leakage. The inspectors performed a walkdown of containment shortly after shutdown to identify boric acid leaks. In addition, the inspectors accompanied licensee personnel during the containment closeout tour.

This inspection does not constitute a outage sample as defined in IP 71111.20-05 because the outage extended beyond the last day of the inspection period.

b. Findings

No findings of significance 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:

- calibration of 'B' steam generator protective level channel;
- emergency diesel generator monthly testing;
- in-service test of 'C' auxiliary feedwater pump; and
- pressurizer pressure channel A calibration.

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, American Society of Mechanical Engineers code, and reference values were consistent with the system design basis;
- where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure;
- where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished;
- prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test;
- equipment was returned to a position or status required to support the performance of its safety functions; and

- all problems identified during the testing were appropriately documented and dispositioned in the CAP.

Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on June 2, 2010, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the simulator, operations support center, technical support center, and 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 of significance were identified.

**2. RADIATION SAFETY**

**Cornerstone: Public Radiation Safety**

2RS7 Radiological Environmental Monitoring Program (71124.07)

This inspection constituted a partial sample as defined in IP 71124.07-5.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed the annual radiological environmental operating reports and the results of any licensee assessments since the last inspection to assess whether the Radiological Environmental Monitoring Program was implemented in accordance with the licensee's TSs and Offsite Dose Calculation Manual (ODCM). This review included

report changes to the ODCM with respect to environmental monitoring, commitments in terms of sampling locations, monitoring and measurement frequencies, land use census, inter-laboratory comparison program, and analysis of data.

The inspectors reviewed the ODCM to identify locations of environmental monitoring stations and the UFSAR for information regarding the environmental monitoring program and meteorological monitoring instrumentation.

The inspectors reviewed quality assurance audit results of the program to assist in choosing inspection “smart samples” and audits and technical evaluations performed on the vendor laboratory program.

The inspectors reviewed the annual effluent release reports and the 10 CFR Part 61, “Licensing Requirements for Land Disposal of Radioactive Waste,” report, to determine if the licensee is sampling, as appropriate, for the predominant and dose-causing radionuclides likely to be released in effluents.

b. Findings

No findings of significance were identified.

.2 Site Inspection (02.02)

a. Inspection Scope

The inspectors walked down five of the air sampling stations and five of the thermoluminescent dosimeter monitoring stations to determine whether they were located as described in the ODCM and to determine the equipment material condition. The air sampling stations were selected based on operability history and included those located in areas of highest effluent deposition based on historical meteorological conditions (X/Q, D/Q wind sectors). Dosimeter monitoring stations were selected based on the most risk-significant locations (e.g., those that have the highest potential for public dose impact). The inspectors reviewed the calibration and maintenance records of several environmental air samplers including those observed during the walkdown. The records were reviewed to determine whether the equipment was adequately maintained consistent with the licensee’s procedures. The inspectors determined whether the licensee initiated sampling of other appropriate media upon loss of a required sampling station, if applicable.

Based on direct observation and review of records, the inspectors assessed whether the meteorological instruments were operable, calibrated, and maintained in accordance with guidance contained in the UFSAR, NRC Regulatory Guide 1.23, “Meteorological Monitoring Programs for Nuclear Power Plants,” and licensee procedures. The inspectors evaluated whether the meteorological data readout and recording instruments in the control room and, if applicable, at the tower were operable.

The inspectors assessed whether missed or anomalous environmental samples were identified and reported in the annual environmental monitoring reports. The inspectors selected five events that involved a missed sample, inoperable sampler, lost thermoluminescent dosimeter, or anomalous measurement to evaluate whether the licensee identified the cause and implemented corrective actions. The inspectors reviewed the licensee’s assessment of any positive sample results (i.e., licensed

radioactive material detected above the lower limits of detection and reviewed the associated radioactive effluent release data that was the source of the released material.

The inspectors evaluated whether records, as required by 10 CFR 50.75(g), of leaks, spills, and remediation since the previous inspection were retained in a retrievable manner

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

4OA1 Performance Indicator Verification (71151)

.1 Unplanned Scrams per 7000 Critical Hours

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams per 7000 Critical Hours performance indicator (PI) for the period from the second quarter 2009 through the first quarter 2010. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 6, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports, and NRC Inspection Reports for the period of April 1, 2009, through March 31, 2010, to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

.2 Unplanned Scrams with Complications

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams with Complications performance indicator for the period from the second quarter 2009 through the first quarter 2010. 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, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports, and NRC Integrated Inspection Reports of April 1, 2009 through March 31, 2010 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data

collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

.3 Mitigating Systems Performance Index – Auxiliary Feedwater System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI)– Auxiliary Feedwater System performance indicator for the period from the first quarter through the fourth quarter of 2009 to determine the accuracy of the PI data reported during those periods. Performance Indicator definitions and guidance contained in the NEI Document 99-02, “Regulatory Assessment Performance Indicator Guideline,” Revision 6, were used to assist the inspectors’ evaluation. The inspectors reviewed the licensee’s operator narrative logs, condition reports, MSPI derivation reports, MSPI margin reports, and maintenance rule data for the first quarter through fourth quarter 2009 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. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI auxiliary feedwater system sample as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

40A2 Identification and Resolution of Problems (71152)

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

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

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify 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: the complete and accurate identification of the problem; that timeliness was commensurate with the safety significance; that 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 attached List of Documents Reviewed.

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 of significance 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 of significance were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the CAP and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors' review was focused on repetitive equipment issues, but also considered the results of daily inspector CAP item screening discussed in Section 4OA2.2 above, licensee trending efforts, and licensee human performance results. The inspectors' review nominally considered the 6 month period of October 2009 through March 2010, although some examples expanded beyond those dates where the scope of the trend warranted.

The review also included issues documented outside the normal CAP in major equipment problem lists, repetitive or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self assessment reports, and Maintenance Rule assessments. The inspectors compared and contrasted their results with the results contained in the licensee's

CAP trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

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

b. Findings

No findings of significance were identified.

.4 Selected Issue Follow-Up Inspection: Operational Issues with Pressurizer Spray Valves

a. Inspection Scope

During a review of items entered in the licensee's CAP, the inspectors recognized a condition report documenting degraded performance of the pressurizer spray valves. The licensee identified that a steadily increasing control signal was required to maintain steady-state pressure. The inspectors reviewed historical issues associated with the valves and discovered there had been periodic operational issues in the past. Most of the issues dealt with excessive boric acid buildup from packing leakage (which on occasion restricted motion of the valves) and position indication issues. The inspectors discussed the online repair efforts performed and future actions that were planned with the licensee. The inspectors discussed the impact of the issues with operations and engineering staff, and reviewed previous corrective actions. The inspectors determined that the corrective actions taken and planned were commensurate with the significance of the issues.

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

b. Findings

No findings of significance were identified.

4OA5 Other Activities

.1 (Closed) NRC Temporary Instruction 2515/173 Review of the Industry Ground Water Protection Voluntary Initiative

a. Inspection Scope

An NRC assessment was performed of the licensee's implementation of the Nuclear Energy Institute – Ground Water Protection Initiative (NEI-GPI) (dated August 2007 (ML072610036)) at the Palisades Nuclear Plant. Under the voluntary initiative, each site was to have developed an effective, technically sound groundwater protection program that aligned with the NEI initiative by August 2008.

The inspectors assessed whether the licensee evaluated work practices that could lead to leaks and spills and performed an evaluation of systems, structures, and components that contain licensed radioactive material to determine potential leak or spill mechanisms.

The inspectors determined if the licensee completed a site characterization of geology and hydrology to identify the predominant ground water gradients and potential pathways for ground water migration from onsite locations to offsite locations. The inspectors also evaluated whether an onsite ground water monitoring program had been implemented to monitor for potential licensed radioactive leakage into groundwater and that the licensee had provisions for the reporting of its ground water monitoring results. (See <http://www.nrc.gov/reactors/operating/ops-experience/tritium/plant-info.html>)

The inspectors reviewed the licensee's procedures for the decision making process for potential remediation of leaks and spills, including consideration of the long term decommissioning impacts. The inspectors assessed whether records of leaks and spills that were recorded in the licensee's decommissioning files, to determine if the information was in accordance with 10 CFR 50.75(g).

The inspectors reviewed the licensee's notification protocols to determine whether they were consistent with the GPI and/or State statues. The inspectors assessed whether the licensee identified the appropriate local and state officials and conducted briefings on its GPI. The inspectors also assessed whether protocols were established for notification of the applicable local and state officials regarding detection of leaks and spills.

b. Findings

No findings of significance were identified; however, as specified in 2515/173-05, the inspectors identified the following deviations from NEI-GPI protocols or areas within the NEI-GPI that were not fully addressed within the licensee's program.

(1) Ground Water Protection Initiative Objective 1.2 - Site Risk-Assessment.

*b. Have existing leak detection methods been identified for each SSC and work practice that involves or could reasonably be expected to involve licensed material and for which there is a credible mechanism for licensed material to reach ground water?*

The licensee had not performed/completed a written evaluation of work practices that involved or could reasonably be expected to involve licensed material and for which there was a credible mechanism for licensed material to reach ground water. Additionally, the inspectors identified a few work practices and buildings outside the protected area that have a potential for licensed material to reach ground water.

*g. Has a frequency been established for periodic reviews of SSCs and work practices?*

The frequency for periodic reviews of work practices was not established.

(2) Ground Water Protection Initiative Objective 1.4 - Remediation Process.

*b. Has an evaluation been made of the potential for detectible levels of licensed material resulting from planned releases of liquids and/or airborne materials?*

The licensee had not performed/completed an evaluation of the potential for detectable levels of licensed material from planned releases of liquids and/or airborne materials (e.g., rain-out and condensation).

#### 4OA6 Management Meetings

##### .1 Exit Meeting Summary

- On July 1, 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:

- On May 28, 2010, the inspectors presented the results of the triennial heat sink review inspection to Mr. Alan Blind, and other members of the licensee's staff. The licensee acknowledged the observation presented.
- The results of the GPI and radiological environmental monitoring program inspection with the Nuclear Safety Director, Mr. D. Hamilton, and other staff members on May 28, 2010.

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

ATTACHMENT: SUPPLEMENTAL INFORMATION

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee

M. Anderson, System Engineer  
P. Anderson, Licensing Manager  
S. Andrews, Senior Chemistry Specialist  
C. Schwarz, Site Vice President  
V. Beilfuss, Project Manager  
A. Blind, Engineering Director  
N. Brott, Emergency Preparedness Coordinator  
K. Bowers, Radiation Protection  
J. Burnett, RETS-REMP Specialist  
T. Davis, Regulatory Compliance  
B. Dotson, Regulatory Compliance  
J. Fontaine, Senior Emergency Planning Coordinator  
T. O'Leary, Corrective Action Manager  
M. Ginzal, Radiation Protection  
G. Goralski, Design Engineering Supervisor  
J. Hagar, Technical Specialist, Engineering Programs  
D. Hamilton, Nuclear Safety Assurance Director  
J. Hill, Entergy/MP&C Manager  
T. Horan, Operations Training Superintendent  
D. Karnes, Operations Training  
B. Kemp, Entergy/Design Engineering Manager  
T. Kirwin, Plant General Manager  
S. Martin, Operations Initial Training Supervisor  
M. McCarty, System Engineer  
D. Moody, Radiation Protection  
B. Nixon, Assistant Operations Manager  
P. Schmidt, Simulator Training Supervisor  
T. Shewmaker, Chemistry Manager  
C. Sherman, Radiation Protection Manager  
M. Sicard, Operations Manager  
G. Sleeper, Assistant Operations Manager

#### Nuclear Regulatory Commission

A.M. Stone, Chief, Engineering Branch 2

**LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

Opened

NONE

Closed

05000255/2515/173	TI	Review of the Industry Ground Water Protection Voluntary Initiative (Section 4OA5.1)
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Discussed

NONE

## DOCUMENTS REVIEWED

### 1R01 Adverse Weather Protection

- Admin 4.02, Control of Equipment, Revision 54
- CR-PLP-2010-00975, Transient on electrical grid caused by Covert Generating Station, March 7, 2010
- CR-PLP-2010-01362, Control room received indications of loss of Rear Bus, April 1, 2010
- CR-PLP-2010-02055, Most annunciators on C-53, 345 KV Switchyard Scheme are lit, May 19, 2010
- DBD 6.02, 345 KV Switchyard, Revision 3
- Nuclear Plant Operating Agreement for the Palisades Nuclear Plant
- SOP-30, Station Power, Revision 56
- Switchyard System Health Reports, Second Quarter 2009 thru First Quarter 2010

### 1R04 Equipment Alignment

- DBD-1.03, Auxiliary Feedwater System, Revision 7
- Palisades Tagout CSW-016-P-7B REPLACE, for replacement of 'B' Service Water Pump
- SOP-12, Feedwater System, Revision 57
- SOP-15, Service Water System, Revision 49
- SOP-15, Service Water System, Revision 49
- SOP-22, Emergency Diesel Generators, Revision 46
- UFSAR Section 9.1, Service Water System, Revision 25
- UFSAR Section 9.7, Auxiliary Feedwater System, Revision 27

### 1R05 Fire Protection

- CR-PLP-2004-08052, Manual Action for EDG Auxiliaries, December 3, 2004
- EN-TQ-125, Fire Brigade Drills, Revision 0
- Fire Hazards Analysis Report, Revision 7
- FPSP-RO-9, Fire Sprinkler System Inspection, Revision 2

### 1R06 Flooding

- EM-28-02, Check Valve Program, Revision 6
- DBD-7.08, Plant Protection Against Flooding, Revision 6
- D-PAL-82-043, T-2 Overflow to Condensate Pump Room, November 30, 1982

### 1R07 Heat Sink Performance (71111.07T)

- ARP-20A; Diesel Generator 1-1 Scheme EK-10; Revision 3
- Basis Document for COP-15; Chemistry Operating Procedure; Revision 3
- COP-15; Chemistry Operating Procedure; Revision 14
- Critical Service Water System Health Report for Fourth Quarter of 2010
- Critical Service Water System Health Report for Fourth Quarter of 2009
- CR-PLP-2007-05921; E-22A/B And E-31A/B EDG Jacket Water and Lube Oil Coolers Require A Tube Plugging Calculation for Eddy Current Testing; November 20, 2007
- CR-PLP-2008-04092; CDBI Self-Assessment Issue - Draft EDG LO Cooler Tube Plugging Calculation; October 2, 2008

- CR-PLP-2009-00020; Jacket Water leak at K-6A Jacket Water to Aftercooler Marmon clamp gasket; January 5, 2009
- CR-PLP-2009-01376; "FI-1772 VHX-3, Cooler Service Water Flow, Gauge Found Out of Tolerance"; March 37, 2009
- CR-PLP-2009-01840; "Engineering Evaluate the Difference Between the Flow Rate between the CAC as required by RO-216"; April 7, 2009
- CR-PLP-2009-04519; Critical Service Water Pump P-7C Coupling Failure; September 29, 2009
- CR-PLP-2009-05852; K-6B Lube Oil cooler End Bells Have Leak (<1 drop/5 min) on SW Side; December 21, 2009
- CR-PLP-2010-02156; Door 71, "Diesel Generator 1-1 Room Door" Comes in Contact With ELU-81; May 27, 2010
- CR-PLP-2010-02167; Corrosion on the 'A' Critical Service Water Header; May 27, 2010
- CR-PLP-2010-02176; Heat Exchanger Inspection Checklist Review for Required Completeness; May 28, 2010
- CR-PLP-2010-02182; Discrepancy Identified Between Alarm Response Procedure and Basis Calculation; May 28, 2010
- EA-C-PAL99-1209B-01; "Generation of Flow Rate Acceptance Criteria for Technical Specification Surveillance Test RO-216"; Revision 2;
- EA-D-PLA-93-272F-02; "Diesel Generator Lube Oil Cooler and Jacket Water Cooler Performance"; Revision 2
- EA-EAR-98-0423-01; Evaluate the Replacement of P-07B SWP per EAR-98-0423; Revision 1
- EAR 98-0512; Establish Maximum Service Water Inlet Temperature; July 24, 2001
- EC 13910-03; Engineering Analysis of Component HB-23-E2775; Revision 0
- EC 14577; Service Water Pump Upgrade for a Layne and Bowler Pump Assembly for
- EC 20082; SW Pump P-7B Online Rebuild with L and B Assembly; Revision 1
- EC 334; Evaluate Vendor's Technical Data for Acceptance of Spare SW Pump P-7B Bowl Assembly; December 3, 2007
- EC 5000121478; Replace SW Piping and Components for CR HVAC Condenser VC-10; Revision 2
- EC 5000122473 (EC 9090); Alternate Screen Wash Supply from Fire Protection System to Traveling Screens; Revision 0
- EC 7381; Service Water Pump Life Improvement; Revision 1
- EC-14577; June 10, 2009.
- EM-09-16; EDG 1-1 Jacket Water and Lube Oil Cooler Visual Testing Checklist completed February 8, 2010
- Emergency Diesel Generator System Health Report for Fourth Quarter of 2010
- Emergency Diesel Generator System Health Report for Fourth Quarter of 2009
- EN-CS-S-008-MULTI; Pipe Wall Thinning Structural Evaluation; Revision 0
- EN-DC-184; NRC Generic Letter 889-13 Service Water Program; Revision 1
- EN-DCD-343; Buried Piping and Tanks Inspection and Monitoring Program; Revision 2
- ENN-CS-S-008; Pipe Wall Thinning Structural Evaluation; Revision 2
- ENN-DC-185; Through-Wall Leaks in ASME Section XI Class 3 Moderate Energy Piping Systems; Revision 0
- GE Fire Water and SW Hx Microbiology Report: 1st Quarter Routine Bacteria Testing Results; May 5, 2009
- Generic Letter 89-13 Heat Exchanger Program System Health Report for First Quarter of 2010
- LIA-1338; Instrument Calibration Sheet for Service Water Bay Level Indicator; October 20, 2009
- LIT-1388 Instrument Calibration Sheet for Service Water Bay Level Transmitter; October 20, 2009

- Master Heat Exchanger Testing Plan; Revision 7
- MO-7A-1; Emergency Diesel Generator 1-1; April 6, 2010
- ONP-12; Acts of Nature; January 13, 2009
- ONP-6.1; Loss of Service Water Off-Normal Procedure; Revision 15
- P-7C; Revision 1
- QO-14; Inservice Test Procedure - Service Water Pumps P-7A and P-7C; Revision 31
- Raw Water Corrosion Program Report for Operational Cycle 20 and 2009 Refueling Outage; February 11, 2010
- Raw Water Corrosion Report, CSW SHR 2009 4th Quarter
- Root Cause Evaluation Report; SW Pump P-7C Discharge Pressure Failure; Revision 1
- Section 5.11 of DWO-1 Operator's Daily/Weekly Items Modes 1, 2, 3 and 4; Revision 87
- SW and Cooling Water Corrosion Rate Study, September 24, 2009
- WO 00148617-01; Service Water Flow Verification; July 30, 2009
- WO 00190235-06; P-7C, Reduced Flow>RO-144: Replace Pump Assembly per
- WO 00191763-01; RO-128-2, Diesel Generator 1-2 24 Hour Load Run; March 3, 2010
- WO 00295941-01; Service Water Flow Verification; October 10, 2007
- WO 516327416-01; P-7A; Removal of Old P-7A/Installation New Pump Assembly/EC7381; May 30, 2009
- WO 52037392; Misc. SWS Basin Level Instrument Calibrations; October 20, 2009

#### 1R11 Licensed Operator Regualification Program

- NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 6
- Palisades Simulator Exam Scenario PLSXM-OPS-102

#### 1R12 Maintenance Effectiveness

- 2010 Fuel Handling System Health Report
- CR-PLP-2006-05713, Sluggish spray valves challenge PCS pressure control, December 4, 2006
- CR-PLP-2007-00890, CV-1057 Open/Close Indication was erratic, February 27, 2007
- CR-PLP-2008-00539, CV-1059 did not move when control switch was placed in the closed position, February 4, 2008
- CR-PLP-2009-00550, Arcing, sparking, and black smoke from spent fuel handling machine bridge, February 9, 2009
- CR-PLP-2009-00619, During troubleshooting of arcing, found bridge drive controller sustained damage, February 13, 2009
- CR-PLP-2009-01032, Fuel Handling System Exceeds Maintenance Rule Performance Criteria, March 12, 2009
- CR-PLP-2009-05082, Amps on pressurizer heater transformer lowered from 142.63 amps to 138.41 amps, November 4, 2009
- CR-PLP-2010-00861, Performed SOP-1A to manually exercise pressurizer spray valves and CV-1057 did not appear to move, March 1, 2010
- CR-PLP-2010-01132, Maintenance Rule Repeat Functional Failure of CV-1057, March 18, 2010
- EGAD-EP-10, Maintenance Rule Scoping Document, Revision 5
- FSAR Chapter 4, Primary Coolant System, Revision 28
- Pressurizer System Health Reports, 2008 thru first-half 2009
- RFL-F-2, Refueling Machine Preventative Maintenance Procedure, Revision 4
- CPCo letter to NRC, Responses to the May 21, 1986 Confirmatory Action Letter, July 3, 1986
- FSAR Section 9.11, Fuel Handling and Storage Systems, Revision 28

### 1R13 Maintenance Risk Assessments and Emergent Work Control

- Admin 4.02, Control of Equipment, revision 54
- CR-PLP-2010-01479, Water and Steam are Dripping from Piping from T-5, April 12, 2010
- DBD 1.03, Auxiliary Feedwater System, Revision 7
- EC 21499, Creation of New Branch Connection to Encapsulate Pipe Leak
- EN-WM-104, On Line Risk Assessment, Revision 2

### 1R15 Operability Evaluations

- CR-PLP-2010-02021, Service water pump P-7B stator housing temperature running 15F higher as compared to P-7A, May 17, 2010
- EA-GEJ-99-02, Single Failure Assumption for Main Steam Line Break (MSLB) and Improved Tech Spec Equipment Operability Requirements, Revision 0
- TS 3.6.6, Bases change due to MSLB EA, Revision 12
- TS B 3.6.6, ITS Submittal

### 1R18 Plant Modifications

- ARP-13, 345kV Scheme EK-50 (C-53, C54), Revision 49
- ARP-37, Safeguards Transformer 1-1 EX-07, Revision 5
- DBD 6.02, 345kV Switchyard, Revision 3
- FC 90-041, Re-enable Trip of Station/Start-up Transformer on Sudden Pressure Relay
- EC 22014, EX-10 Remove Sudden Pressure Relay 463M XFR Trip and Deluge Actuation
- EC 22134, EX-07 Remove Sudden Pressure Relay 463-SG, 63TR, and Hand Crank Removal Transformer Trips
- EN-DC-136, Temporary Modifications, Revision 5
- FSAR Chapter 8, Electrical Systems, Revision 27

### 1R19 Post-Maintenance Testing

- CR-PLP-2008-03829, Maintenance procedure as-left criteria for governor needs to be returned to previous value, September 11, 2008
- CR-PLP-2010-01479, Water and Steam are Dripping from Piping from T-5, April 12, 2010
- DBD 1.03, Auxiliary Feedwater System, Revision 7
- EC 21499, Creation of New Branch Connection to Encapsulate Pipe Leak
- EC20082, attachment 2, Service Water Pump P-7B Flow Curves
- EN-DC-306, Commercial Grade Item Evaluation, Revision 3
- EPS-E-1, Replace and Calibrate Diesel Generator EGA Control Box, Revision 21
- FSAR Chapter 7, Instrumentation and Controls, Revision 25
- MO-7A-1, Emergency Diesel Generator, Revision 71
- QO-14, Inservice Test Procedure- Service Water Pumps, Revision 31
- RE-131, Diesel Generator 1-1 Load Reject, Revision 5
- RE-134, Performance Test, Battery Charger #2 (ED-16), Revision 6
- RO-145, Comprehensive Test Procedure for Auxiliary Feedwater Pumps P-8A, P-8B, and P-8C, Revision 9
- RO-34, Alternate Hot Shutdown Panel Instrumentation Checks Basis Document, Revision 0
- WO 183918, EC-150, Perform a One-Time Replacement of All Fuses
- WO 51623737, P/S-0110A; (Aux Hot Shutdown Panel) Capacitor Replacement
- WO 51634170 Replace Governor on EDG 1-1

### 1R20 Outage Activities

- GOP-14, Shutdown Cooling Operations, Revision 43
- GOP-2, Mode 5 to Mode 3  $\geq$  525 degrees, Revision 32
- MSM-M-71, Containment Cleanliness Implementation Plan and Containment Closeout, Revision 7
- ONP-17, Loss of Shutdown Cooling, Revision 37
- Palisades Response to Generic Letter 88-17, Loss of Decay Heat Removal (60 day response), January 3, 1989
- SOP-1B, Primary Coolant System-Cooldown, Revision 11

### 1R22 Surveillance Testing

- CR-PLP-2008-03092, While Performing RI-99, Technicians found no power to EC-150A Aux Hot Shutdown Panel, July 17, 2008
- CR-PLP-2010-01725, Potential Appearance of Unacceptable Preconditioning for the Emergency Diesel Generators, April 27, 2010
- CR-PLP-2010-01725, Potential Appearance of Unacceptable Preconditioning for the Emergency Diesel Generators, April 27, 2010
- CR-PLP-2010-01793, Entergy has no specific procedures for evaluating Part 21 issues, April 30, 2010
- CR-PLP-2010-2212, RI-3A has a Step Embedded in a Note, June 1, 2010
- CR-PLP-2010-2228, RI-3C found Setpoint Out of Tolerance, June 3, 2010
- MO-7A-1, Emergency Diesel Generator 1-1, Revision 71
- QO-21, Inservice Test Procedure-Auxiliary Feedwater Pumps Basis Document, Revision 14
- QO-21, Inservice Test Procedure-Auxiliary Feedwater Pumps, Revision 38
- RI-3A, Pressurizer Pressure Channel A, Revision 2
- RI-4 Basis Document for Steam Generator Level Calibrations, Revision 6
- RI-4B, Steam Generator Level Channel B Calibration, Revision 6
- SOP-12, Feedwater System, Revision 57
- WO 230789, PI-1479 Indicating Low out of Spec, Adjust PCV-1479
- WO 233879, 1-1 Diesel Starting Air Press Low, Adjust PCV-1480 HLM

### 1EP6 Drill Evaluation

- NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 6
- Palisades Second Quarter Integrated Drill Scenario, June 2, 2010

### 2RS7 Radiological Environmental Monitoring Program

- 2008 Radiological Environmental Operating Report; Palisades Nuclear Plant; May 14, 2009
- 2009 Annual Radioactive Effluent Release and Waste Disposal Report, Palisades Nuclear Plant; April 30, 2010
- 2009 Radiological Environmental Operating Report; Palisades Nuclear Plant; May 14, 2010
- CH 6.10; Radiological Environmental Monitoring Program; Revision 4
- EN-RW-104; Attachment 9.1; 10CFR Part 61 Waste Stream Screening and Evaluation; ALPS Charcoal Filter Media (ALPS Carbon); 4/5/2010
- EN-RW-104; Attachment 9.1; 10CFR Part 61 Waste Stream Screening and Evaluation; ALPS Resin; April 15, 2010
- LO-PLPLO-2008-00195; Pre-NTC Inspection – Ground Water Protection – Gaseous and Liquid Effluent Treatment; Date Not Provided

- LO-PLPLO-2009-00120; Snapshot Assessment on Regulatory Guide 4.1 and NUREG 1301; Date not Provided
- MR-35; Turbine Sump Collection and Calculation; Revision 10
- MR-36; Service Water Collection and Calculation; Revision 11
- ODCM Appendix A; Relocated Technical Specification per NRC Generic Letter 89-01 (TAC No 75060); Revision 14
- Offsite Dose Calculation Manual; Revision 23
- Quality Assurance Audit Report; QA-[2-6]-2009-PLP-1; Chemistry, Effluents, and Environmental Monitoring; July 9, 2009

#### 40A1 Performance Indicator Verification

- CR-PLP-2009-00374, P-8C Seal Water was Indicating less than the Required Band, January 29, 2009
- CR-PLP-2009-02111, CV-2010 CST T-2 M/U Did Not Open when it's Handswitch was in the Auto or Open Position, April 16, 2009
- CR-PLP-2009-05749, While Performing Instrument Loop Calibration, Value Found out of As-Found Tolerance, December 15, 2009
- CR-PLP-2009-05751, While Performing FT-0727 Loop Calibration, Found FM-0727B out of As-Found Tolerance, December 15, 2009
- NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 6
- Operations narrative log search, 1 April 2009 through 31 March 2010
- Palisades Mitigating System Performance Index Basis Document, June 26, 2008

#### 40A2 Identification and Resolution of Problems

- CR-PLP-2008-00539, CV-1059 did not move when control switch was placed in the closed position, February 4, 2008
- CR-PLP-2010-00861, Performed SOP-1A to manually exercise pressurizer spray valves and CV-1057 did not appear to move, March 1, 2010
- CR-PLP-2010-01456, Pressurizer spray valve CV-1059 appears to be slowly degrading, April 8, 2010
- Palisades Operations Department Monthly Performance Report, January 2010, February 9, 2010
- Palisades Operations Department, Monthly Performance Report, December 2009, January 11, 2010
- Palisades Operations Department, Monthly Performance Report, February 2010, March 24, 2010
- Palisades Operations Department, Monthly Performance Report, March 2010, March 19, 2010
- Palisades Operations Department, Monthly Performance Report, November 2009, December 18, 2009
- Palisades Operations Department, Monthly Performance Report, October 2009, November 18, 2009
- QA-10-2009-PLP-1, Quality Assurance Audit Report, Maintenance, November 9 through November 17, 2010
- QA-16-2009-PLP-1, Quality Assurance Audit Report, Security and Maintenance, November 9 through December 13, 2009
- QA-4-2010-PLP-1, Quality Assurance Audit Report, Engineering Design Control, March 15, 2010 through May 12, 2010

- QS-2009-PLP-023, Quality Assurance Surveillance Report, Review "A" Level Condition Reports, CR-PLP-2009-04080, 04184, and 04519 to determine: Immediate compensatory actions to mitigate the consequences of an event to ensure actions and implementation are appropriate and timely, October 19 – 21, 2009
- QS-2010-PLP-003 Supplemental Personnel Follow-Up Surveillance, January 7 through January 19, 2010
- QS-2010-PLP-004, Entergy Mid Cycle TR 1-1 Qualification Issues Follow-Up Surveillance, January 18 through January 19, 2010
- QS-2010-PLP-005, EN-QV-126 Follow-Up on Palisades Mid-Cycle Corporate Assessment for AFI-OR.6-1, Industrial Safety, documented in CR-PLP-2009-02712, CA-00013, January 18 through January 27, 2010
- QS-2010-PLP-009 Security, QA follow-up Surveillance of five Performance Deficiencies identified during the 2009 Security Audit, March 1 through March 9, 2010
- QS-2010-PLP-011, Quality Assurance Follow-up Surveillance of a chemistry, Effluents, and Environmental Audit Identified performance Deficiency

#### 40A5 Other Activities

- COP-35; Ground Water Monitoring Program; Revision 0
- CR-PLP-2010-02147; Gaps Noted in Palisades Ground Water Monitoring Program; May 27, 2010
- CR-PLP-2010-02163; Quarterly Review Required by EN-CY-111 not performed for Last Two Quarters of 2009; May 27, 2010
- CR-PLP-2010-02163; Validity Question Regarding Vendor Procedure Used for Ground Water Sampling; May 27, 2010
- CR-PLP-2010-02165; FSAR Section 14.20 Should be Revised to Properly Describe Postulated Releases; May 27, 2010
- EN-CY-108; Monitoring of Nonradioactive System; Revision 3
- EN-CY-109; Sampling and Analysis of Groundwater Monitoring Wells; Revision 2
- EN-CY-111; Radiological Ground Water Monitoring Program; Revision 0
- EN-LI-108; Event Notification and Reporting; Revision 4
- EN-RP-113; Response to Contaminated Spill/Leaks; Revision 4
- GPI Data Review; File No. 09.0025576.00; Palisades Nuclear Power Plant; April 2009
- Hydrogeologic Investigation Report; Palisades Nuclear Plant; Covert, Michigan; December 2008
- Procedure No. COP-35; Ground Water Monitoring Program; Revision 0
- Radiological SSC Groundwater Initiative Risk Evaluation Criteria; Report A10125R-001; May 2010
- Site Hydrogeologic Assessment in Support of Entergy GPI; Palisades Nuclear Plant; Covert, Michigan; August 27, 2007
- Technical Basis Document; Procedure No. COP-35; Ground Water Monitoring Program; Revision 0

## LIST OF ACRONYMS USED

AC	Alternating Current
ADAMS	Agency Documents Access and Management System
CAP	Corrective Action Program
CFR	Code of Federal Regulations
CR	Condition Report
EDG	Emergency Diesel Generator
GPI	Groundwater Protection Initiative
IMC	Inspection Manual Chapter
IP	Inspection Procedure
MSPI	Mitigating Systems Performance Index
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
PARS	Publicly Available Records
PI	Performance Indicator
TI	Temporary Instruction
TS	Technical Specification
TSO	Transmission System Operator
UFSAR	Updated Final Safety Analysis Report
WO	Work Order



UNITED STATES  
NUCLEAR REGULATORY COMMISSION

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

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

SUBJECT: PALISADES NUCLEAR PLANT INTEGRATED INSPECTION  
REPORT 05000255/2010003

Dear Mr. Schwarz:

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

This 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, no findings of significance were identified.

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

Sincerely,  
/RA/  
Robert J. Orlikowski, Acting Chief  
Branch 4  
Division of Reactor Projects

Docket No. 50-255  
License No. DPR-20  
Enclosure: Inspection Report 05000255/2010003  
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Letter to C. Schwarz from R. Orlikowski dated August 5, 2010.

SUBJECT: PALISADES NUCLEAR PLANT INTEGRATED INSPECTION  
REPORT 05000255/2010003

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