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

February 8, 2011

Mr. Tom Kirwin
Vice-President, Operations (Acting)
Entergy Nuclear Operations, Inc.
Palisades Nuclear Plant
27780 Blue Star Memorial Highway
Covert, MI 49043-9530

SUBJECT: PALISADES NUCLEAR PLANT INTEGRATED INSPECTION REPORT 05000255/2010005 AND OFFICE OF INVESTIGATIONS REPORT NO. 3-2010-012

Dear Mr. Kirwin:

On December 31, 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 January 10, 2011, with you and other members of your staff. This also refers to the investigation completed by the NRC Office of Investigations on August 27, 2010.

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, four NRC-identified findings and one self-revealed finding of very low safety significance were identified. All involved violations of NRC requirements. Additionally, one licensee-identified violation is listed in this report. 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. The NRC has also determined through information developed during previous inspections and a subsequent investigation, that the failure to provide accurate information in a 2009 Notice of Enforcement Discretion was not willful. Notwithstanding this conclusion, the NRC has determined that a Severity Level IV violation of NRC requirements occurred. This violation is also being treated as a NCV, consistent with Section 2.3.2 of the Enforcement Policy.

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

U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office at the Palisades Nuclear Plant. In addition, if you disagree with the cross-cutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region III, and the NRC Resident Inspector at the Palisades Nuclear Plant.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, 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 05000255/2010005;
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

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| Docket No: | 50-255 |
| License No: | DPR-20 |
| Report No: | 05000255/20010005 |
| Licensee: | Entergy Nuclear Operations, Inc. |
| Facility: | Palisades Nuclear Plant |
| Location: | Covert, MI |
| Dates: | October 1, 2010, to December 31, 2010 |
| Inspectors: | J. Ellegood, Senior Resident Inspector<br>T. Taylor, Resident Inspector<br>J. Cassidy, Senior Health Physicist<br>J. Corujo-Sandin, Reactor Engineer<br>G. Hansen, Security Inspector<br>M. Holmberg, Reactor Inspector<br>B. Jose, Senior Reactor Engineer<br>M. Mitchell, Health Physicist |
| Approved by: | John B. Giessner, Chief<br>Branch 4<br>Division of Reactor Projects |

Enclosure

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## SUMMARY OF FINDINGS

IR 05000255/2010005; 10/01/2010 – 12/31/2010; Palisades Nuclear Plant; Inservice Inspection Activities, Maintenance Risk Assessments and Emergent Work Control, Surveillance Testing, Identification and Resolution of Problems, Other Activities

This report covers a 3-month period of inspection by resident inspectors and announced baseline inspections by regional inspectors. Five Green findings and one Severity Level (SL) IV finding were identified by the inspectors. The findings were considered non-cited violations (NCV) of NRC regulations. 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. A finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," were identified by the inspectors for the licensee's failure to follow Procedure CEP-NDE-0955, "Visual Examination of Bare-Metal Surfaces," and perform a bare metal visual examination of vessel head penetration nozzles Nos. 1 and 3 within 4 feet. Instead, the licensee performed the examination at approximately 5 feet and the illumination level at this distance had not been demonstrated as adequate to detect primary coolant system leakage. As a corrective action, the licensee's examiner repeated the bare metal visual examination of nozzles Nos. 1 and 3 and surrounding head surfaces at a distance of less than 4 feet. The violation was entered into the licensee's corrective action program as condition report (CR) PLP-2010-05188.

  The finding was determined to be more than minor because the finding, if left uncorrected, would become a more significant safety concern. Absent NRC identification, the licensee would have continued to perform inadequate examinations of the surfaces of the vessel head near nozzles Nos. 1 and 3, which could allow through-wall nozzle cracks to go undetected. Undetected cracks returned to service would place the vessel head at increased risk for leakage and/or nozzle failure, which affected the Initiating Events Cornerstone attribute of Equipment Performance (barrier integrity). The licensee promptly corrected this issue by repeating the examination of nozzles Nos. 1 and 3 in accordance with the procedure to confirm that no evidence of nozzle leakage existed. The inspectors answered "No" to the Significance Determination Process Phase I screening question "Assuming worst case degradation, would the finding result in exceeding the Technical Specification (TS) limit for any Primary Coolant System (PCS) leakage or could the finding have likely affected other mitigation systems resulting in a total loss of their safety function assuming the worst case degradation"? Therefore, the finding screened as having very low safety significance. This finding has a cross-cutting aspect in the area of Human Performance, Work Practices because the licensee did not effectively communicate expectations regarding procedural compliance and personnel following procedures. Specifically, the failure to perform a bare metal visual examination of vessel head penetration nozzles Nos. 1 and 3 within four feet occurred

because the licensee's management staff did not adequately stress or enforce procedure adherence for this activity. In particular, procedure CEP-NDE-0955 was issued as an "Informational Use" type procedure that was not required to be present at the worksite and thus allowed licensee staff to rely on memory to perform the procedural steps. (H.4(b)) (Section 1R08.2)

- Green. A finding of very low safety significance and associated NCV of 10 CFR 50.65a(4) was self-revealed for the failure to properly assess and manage risk when service water low pressure alarms were received during orange risk reduced inventory operations. The work control center authorized a non-critical service water valve to be stroked with the belief that the system was filled and vented thus precluding an impact on the service water system. However, that portion of the system had not been filled yet. As a result, opening the valve caused a pressure drop in the system. The licensee started a standby service water pump to restore pressure. The issue was also entered into the corrective action program.

  The inspectors determined the finding was more than minor based in-part on example 7g of IMC 0612, Appendix E, which describes a condition where a safety function is significantly degraded without sufficient compensation. Additionally, as described in IMC 0612 Appendix B, the issue is associated with the configuration control attribute and impacted the Initiating Events Cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions in that proper configuration control was not maintained over the shutdown equipment lineup. Utilizing IMC 0609 Appendix G, Shutdown Operations Significance Determination Process, the inspectors determined the issue was Green in Phase I screening since there was adequate mitigation capability and there was no loss of control. The finding had a cross-cutting aspect in the area of Human Performance, Work Control, because the licensee did not appropriately coordinate work activities by incorporating actions to address the impact of work on different job activities to assure plant performance. Specifically, the licensee failed to determine the current status of the service water system and did not evaluate potential impacts during a period of elevated plant risk. (H.3(b)) (Section 1R13)

- Green. The inspectors identified a NCV of TS 5.4 for the licensee's failure to implement procedures specified by Regulatory Guide 1.33. Specifically, the licensee failed to perform a check of the main hook in preparations for the head lift. The procedure used to perform checks lacked details regarding the polar crane for features to be tested on a daily basis. The individual who performed the initial daily check was not familiar with the features to be checked. After the inspectors brought this condition to the attention of the licensee, the licensee delayed the head lift and performed the daily check on the main hook. The licensee has entered this condition into their corrective action program.

  The inspectors concluded that the finding was more than minor, because it revealed programmatic weaknesses that could lead to more significant safety concerns if left uncorrected. Daily crane checks provide assurance that the probability of a heavy load drop is extremely small as discussed in Generic Letter 85-11, the Operating Requirements Manual, and NUREG-0612. The issue impacts the Initiating Event Cornerstone in that load drops could result in a failure of the primary coolant system boundary. Since no load drop occurred and no significant issues were identified with the polar crane, the inspectors concluded the finding was of very low safety significance in accordance with Appendix M. Since the failure to perform the daily check on the main

hook resulted, in part, from ineffective coordination between personnel performing load moves, the inspectors concluded that there is an associated cross-cutting aspect in human performance, work control, appropriate coordination of work activities. (H.3(b)) (Section 1R22)

**Cornerstone: Mitigating Systems**

- Green. A finding of very low safety significance and associated NCV of 10 CFR 50.55a(g)4 was identified by the inspectors for the licensee's failure to establish a weld reference system for 11 welds in the cross-tie line between the chemical and volume control system and the containment spray system. Consequently, these welds had not been entered into the inservice inspection weld database used to schedule followup surface or volumetric examinations. To correct this issue, the licensee implemented changes to the applicable Inservice Inspection isometric drawings and entered these welds into the Inservice Inspection database. The violation was entered into the licensee's corrective action program as CR PLP-2010-05229.

  The finding was determined to be more than minor because the finding, if left uncorrected, would become a more significant safety concern. Absent NRC identification, the licensee would not have examined a sample of these welds, which could have allowed service induced cracks to go undetected. Undetected cracks would place the cross-tie pipe segment at increased risk for through-wall leakage and/or failure, which affected the Mitigating System Cornerstone attribute of Equipment Performance (reliability). The licensee promptly corrected this issue and scheduled weld examinations to ensure cracks would be detected. The inspectors answered "Yes" to the Significance Determination Process Phase I screening question; "Is the finding a design or qualification deficiency confirmed not to result in loss of operability or functionality"? Therefore, the finding screened as having very low safety significance. This finding had a cross-cutting aspect in the area of Human Performance, Resources because the licensee did not provide complete, accurate, and up-to-date procedures, or work packages for the correct labeling of components. Specifically, the licensee staff failed to establish a weld reference system because up-to-date procedures were not developed to ensure identification and labeling of new welds installed in safety-related systems. (H.2(c)) (Section 1R08.1).

- Green. Inspectors identified an NCV of 10 CFR 50, Appendix B, Criterion X, "Inspection," for the failure to ensure that Quality Control (QC) verification inspections were consistently included and correctly specified in quality-affecting procedures and work instructions for construction-like work activities as required by the Quality Assurance Program. The licensee performed extensive reviews, and inspectors performed independent reviews of the licensee's conclusions as well as independent sampling, to confirm that improper or missed inspections did not actually affect the operability of plant equipment. Entergy initiated prompt fleet-wide corrective actions to ensure proper work order evaluation and proper inclusion of QC verification inspections. This issue was entered into the corrective action program under CRs CR-HQN 2009-01184 and CR-HQN-2010-0013.

  The failure to ensure that adequate Quality Control verification inspections were included in quality-affecting procedures and work instructions as required by the Quality Assurance Program was a performance deficiency. This programmatic deficiency was more than minor because, if left uncorrected, it could lead to a more significant safety

concern in that the failure to check quality attributes could involve an actual impact to plant equipment. This issue affected the Design Control attribute of the Mitigating Systems Cornerstone because missed or improper quality control inspections during plant modifications could impact the availability, reliability, and capability of systems needed to respond to initiating events. This performance deficiency was determined to have very low safety significance in Phase 1 of the SDP, since it was confirmed to involve a qualification deficiency that did not result in a loss of operability or functionality. The inspectors determined that this performance deficiency involved a cross-cutting aspect related to the human performance in decision-making because the licensee did not have an effective systematic process for obtaining interdisciplinary reviews of proposed work instructions to determine whether QC verification inspections were appropriate. (H.1(a)) (Section 4OA2.1.b.1)

- Severity Level IV. The inspectors identified a Severity Level IV NCV of 10 CFR 50.9 for the licensee's failure to provide information to the NRC that was complete and accurate in all material respects. Specifically, in a letter on dated October 5, 2009, the licensee inaccurately stated new couplings for a service water pump were independently tested prior to installation. The licensee provided this information as part of a request for a Notice of Enforcement Discretion (NOED). The licensee requested the NOED due to a failure of a service water pump coupling that had not been properly heat treated. The licensee subsequently informed the NRC that the tests had not been performed and entered the condition into the corrective action program.

  The inspectors concluded that the licensee had reasonable opportunity to foresee and correct the inaccurate/incomplete information prior to the information being submitted to the NRC. As a result, this issue was considered a performance deficiency. Using the information provided in IMC 0612, Appendix B, "Issue Screening," the inspectors determined that traditional enforcement was warranted, because violations of 10 CFR 50.9 are considered to potentially impede or impact the regulatory process. Specifically, in order to determine the acceptability of granting discretion, the NRC needed assurance that the replacement couplings met hardness requirements. Using the information provided in the Enforcement Policy, Section 6.9, this issue was determined to be a Severity Level (SL) IV NCV, as it did not meet the definition for a Severity Level I, II, or III Violation. Specifically the violation was not greater than SL IV, because the inspectors concluded that the lack of hardness testing did not impact the NRC's conclusion since the licensee did not enter the period of enforcement discretion. The inspectors also evaluated the underlying performance deficiency under the ROP. Since the licensee did not enter the period of enforcement discretion and all the questions for more than minor in Appendix B were answered no, the inspectors concluded that there was no ROP finding and therefore no cross-cutting aspect. (Section 4OA5.5)

**Cornerstone: Barrier Integrity**

**Cornerstone: Emergency Preparedness**

## 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 corrective action program. 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 at 92 percent power in coastdown for a refueling outage. On October 3, the licensee shutdown the plant for a planned refueling outage. The licensee took the reactor critical on October 28 and synchronized to the grid on October 29. The licensee ascended to 100 percent power over the next few days and reached 100 percent on November 2. The plant remained at or near 100 percent until December 9, when the plant reduced power to 82 percent to lower dose rates in containment for work on a cooling fan. After the work and containment closeout inspection, the plant ascended to 100 percent power on December 12. The plant remained at or near 100 percent power for the remainder of the inspection period.

### 1. REACTOR SAFETY

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

1R01 Adverse Weather Protection (71111.01)

.1 Winter Seasonal Readiness Preparations

a. Inspection Scope

The inspectors conducted a review of the licensee's preparations for winter conditions to verify that the plant's design features and implementation of procedures were sufficient to protect mitigating systems from the effects of adverse weather. Documentation for selected risk-significant systems was reviewed to ensure that these systems would remain functional when challenged by inclement weather. During the inspection, the inspectors focused on plant specific design features and the licensee's procedures used to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant specific procedures. Cold weather protection, such as heat tracing and area heaters, was verified to be in operation where applicable. 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. Specific documents reviewed during this inspection are listed in the Attachment. The inspectors' reviews focused specifically on the following plant systems due to their risk significance or susceptibility to cold weather issues:

- outside water storage tanks including the safety injection and refueling water;
- primary makeup and condensate storage tanks;
- 2.4 kilovolt safeguards bus enclosure;
- emergency diesel generator and supplemental diesel rooms; and
- traveling screen system.

This inspection constituted one winter seasonal readiness preparations sample as defined in Inspection Procedure (IP) 71111.01-05.

b. Findings

No findings were identified.

.2 Readiness for Impending Adverse Weather Condition – High Wind Conditions Thunderstorm Watch

a. Inspection Scope

Since high winds with potential tornados were forecast in the vicinity of the facility for October 26 through 27, the inspectors reviewed the licensee's overall preparations/protection for the expected weather conditions. On October 25 and 26 the inspectors walked down the exterior of the facility to verify that the licensee had secured or removed material that could become air-borne and challenge off-site power. The inspectors evaluated the licensee staff's preparations against the site's procedures and determined that the staff's actions were adequate. During the inspection, the inspectors focused on plant-specific design features and the licensee's procedures used to respond to high wind conditions. The inspectors evaluated operator staffing and accessibility of controls and indications for those systems required to control the plant. Additionally, the inspectors reviewed the UFSAR and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant specific procedures. The inspectors also reviewed a sample of CAP items to verify that the licensee identified adverse weather issues at an appropriate threshold and dispositioned them through the CAP in accordance with station corrective action procedures. Specific documents reviewed during this inspection are listed in the Attachment.

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

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

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

- high pressure safety injection

The inspectors selected this system based on its 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, UFSAR, Technical Specification (TS) requirements, outstanding work orders (WOs), condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment

were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

These activities constituted one partial 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:

- component cooling water room;
- screen house;
- west engineering safeguards room; and
- refueling and spent fuel pool area

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 selected underground bunkers/manholes subject to flooding that contained cables whose failure could disable risk-significant equipment. The inspectors determined that the cables were not submerged, that splices were intact, and that appropriate cable support structures were in place. In those areas where dewatering devices were used, such as a sump pump, the device was operable and level alarm circuits were set appropriately to ensure that the cables would not be submerged. In those areas without dewatering devices, the inspectors verified that drainage of the area was available, or that the cables were qualified for submergence conditions. The inspectors also reviewed the licensee's corrective action documents with respect to past submerged cable issues identified in the CAP to verify the adequacy of the corrective actions. The inspectors performed a walkdown of the following underground bunkers/manholes subject to flooding:

- 1C switchgear room manholes; and
- manhole #4.

This inspection constituted one underground vaults sample as defined in IP 71111.06-05.

b. Findings

No findings were identified.

1R07 Annual Heat Sink Performance (71111.07)

a. Inspection Scope

The inspectors observed the licensee's inspection of containment ventilation system 1 (VHX-1) heat exchanger to verify that potential deficiencies did not impede the heat exchangers ability to remove heat. The inspectors looked for evidence of blocked tubes and tube fouling. In addition the inspectors looked at the service water supply piping to the heat exchanger to verify that interior corrosion did not impact the supply of service water to VHX-1. The inspectors reviewed the licensee's inspection checklist and eddy current test results to verify that VHX-1 was operable. Documents reviewed for this inspection are listed in the Attachment to this document.

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

b. Findings

No findings were identified.

1R08 Inservice Inspection Activities (71111.08)

From October 4, 2010, through October 21, 2010, the inspectors conducted a review of the implementation of the licensee's Inservice Inspection Program for monitoring

degradation of the primary coolant system (PCS), steam generator tubes, emergency feedwater systems, risk-significant piping and components and containment systems.

The reviews described in Sections 1R08.1, 1R08.2, R08.3, IR08.4, and 1R08.5 below, count as one inspection sample as described by IP 71111.08.

.1 Piping Systems Inservice Inspection

a. Inspection Scope

The inspectors observed the following nondestructive examinations required by the American Society of Mechanical Engineers, (ASME) Section XI Code, and/or 10 CFR 50.55a to evaluate compliance with the ASME Code, Section XI, applicable ASME Code Case and Section V requirements, and if any indications and defects were detected, to determine if these were dispositioned, in accordance with the ASME Code or an NRC approved alternative requirement:

- ultrasonic examination of three safety injection system welds (ESS-6-SIS-1HP-220, ESS-6-SIS-1HP-224, ESS-6-SIS-1HP-225A); and
- dye penetrant examination of safety injection system weld (ESS-2-SIS-2B1-5).

The inspectors observed the following nondestructive examination conducted as part of the licensee's industry initiative inspection program for managing primary water stress corrosion cracking in PCS components (MRP-139 Primary System Piping Butt Weld Inspection and Evaluation Guidelines). Specifically, the inspectors conducted a review to determine if the examination was conducted in accordance with the licensee's augmented inspection program, industry guidance documents, and associated licensee examination procedures and if any indications and defects were detected, to determine if these were dispositioned in accordance with approved procedures and NRC requirements:

- manual phased array ultrasonic examination of a safety injection system safe-end-to-pipe weld (PCS-12-SIS-2A1-15).

During non-destructive surface and volumetric examinations performed since the previous refueling outage, the licensee had not identified any recordable indications. Therefore, no NRC review was completed for this inspection procedure attribute.

The inspectors reviewed the following pressure boundary weld completed for a risk significant ASME Code Section XI Class 3 system during the outage to determine if the licensee applied the pre-service non-destructive examinations and acceptance criteria required by the construction Code and the ASME Code Section XI. Additionally, the inspectors reviewed the welding procedure specification and supporting weld procedure qualification records to determine if the weld procedure was qualified in accordance with the requirements of the Construction Code and the ASME Code Section IX:

- auxiliary feedwater welds 1W, 2W, 3W and 4W fabricated during repair of pipe HBC-40-6.

b. Findings

Introduction: A finding of very low safety significance (Green) and associated NCV of 10 CFR 50.55a(g)4 was identified by the inspectors for the licensee's failure to establish a weld reference system for 11 welds in the cross-tie line between the chemical and volume control system, and the containment spray system. Consequently, these welds had not been entered into the Inservice Inspection weld database used to schedule followup surface or volumetric examinations.

Description: On October 18, 2010, the inspectors identified that ten chemical and volume control system welds and one containment spray system weld installed in 2009 had not been recorded on Inservice Inspection isometric drawings nor entered into the Inservice Inspection database used to schedule weld examinations.

The ASME Code Section XI, Article IWA-2610 required a reference system for all welds and areas subject to a surface or volumetric examination. This reference system included permanent identification and location of each weld and weld centerline. The licensee had requested the NRC approve an alternative to this ASME Code Section XI requirement, and on April 30, 2007, the NRC approved this alternative. In lieu of marking each weld, the licensee committed to identify and locate each weld on an isometric drawing. The purpose of this requirement was to establish a system to locate welds for followup Section XI required surface or volumetric examinations. The inspectors requested a copy of the site procedures to implement this NRC approved alternative and the licensee reported no procedures existed to direct site staff to record new welds on the Inservice Inspection isometric drawings. Therefore, the inspectors requested a copy of the Inservice Inspection isometric drawings that identified new Code Class 1 or 2 welds installed since the beginning of the ASME Code Fourth Inservice Inspection Interval. This request prompted the licensee to identify 11 piping welds and a pipe support located in an ASME Section XI Code Class 2 cross-tie line between the chemical and volume control system and the containment spray system, which had not been recorded on Inservice Inspection isometric drawings. These welds and pipe support were installed in April of 2009 in accordance with EC-10069 "PCS Clean-Up (Outside Containment)." Because the Inservice Inspection Program relied on updated Inservice Inspection drawings, these welds had not been added to the Inservice Inspection database for tracking and scheduling weld examinations. Consequently, for these Code Class 2 welds (ESS-2-CVC-RCU-1, 2, 3, 4, 5, 6, 7, 8, 9, 10 and ESS-8-CSS-SLB-216/2) surface or volumetric examinations were not scheduled to occur as required by the ASME Code Section XI Table IWC-2500-1 "Examination Categories" Items C.5.21, C5.30 and C.5.41. The inspectors were concerned that failure to examine a sample of these welds could lead to failure to detect service induced cracks. To correct this issue, the licensee implemented changes to the applicable Inservice Inspection isometric drawings and entered these welds and pipe support into the Inservice Inspection database.

Analysis: The inspectors determined that the licensee's failure to establish a weld reference system for 11 welds in the chemical and volume control system to containment spray system cross-tie line was contrary to the ASME Code Section XI, Article IWA-2610 and was a performance deficiency.

The finding was determined to be more than minor because the finding, if left uncorrected, would become a more significant safety concern. Absent NRC

identification, the licensee would not have examined a sample of these welds, which could have allowed service induced cracks to go undetected. Undetected cracks would place the cross-tie pipe segment at increased risk for through-wall leakage and/or failure, which would affect the safety of an operating reactor. Based upon review of Inspection Manual Chapter (IMC) 0612, Appendix B, "Issue Screening," the inspectors determined the finding affected the Mitigating System Cornerstone attribute of Equipment Performance (reliability). In accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase I - Initial Screening and Characterization of findings," Table 3b, "Significance Determination Process Phase 1 Screening Worksheet for Initiating Events, Mitigation Systems, and Barriers Cornerstones," this represented a degraded cornerstone that required further screening, in accordance with Table 4a - "Characterization/Worksheet for Initiating Events, Mitigating Systems, and Barrier Integrity Cornerstones."

The inspectors determined the finding could be evaluated using the Significance Determination Process in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase I - Initial Screening and Characterization of findings," Table 4a for the Mitigating Systems Cornerstone. The licensee promptly corrected this issue and scheduled weld examinations to ensure cracks would be detected. The inspectors answered "Yes" to the Phase I screening question; "Is the finding a design or qualification deficiency confirmed not to result in loss of operability or functionality?" Therefore, the finding screened as having very low safety significance (Green).

This finding has a cross-cutting aspect in the area of Human Performance, Resources, because the licensee did not provide complete, accurate, and up-to-date procedures, or work packages for the correct labeling of components (IMC 0310, Item H.2(c)). Specifically, the licensee staff failed to establish a weld reference system because up-to-date procedures were not developed to ensure identification and labeling of new welds installed in safety-related systems. The inspectors determined the primary cause of this finding based upon discussions with the licensee's lead Inservice Inspection program engineer.

Enforcement: Title 10 CFR 50.55a(g)4 required in part, that throughout the service life of a boiling or pressurized water reactor facility, components which are classified as ASME Code Class 1, 2, and 3 must meet requirements set forth in Section XI.

The 2001 Edition, through 2003 Addenda of ASME Code Section XI, Article IWA-2610 required that a reference system be established for all welds and areas subject to a surface or volumetric examination.

Contrary to the above, as of October 18, 2010, for 11 welds installed in April of 2009, located in an ASME Section XI Code Class 2 chemical and volume control system to containment spray system cross-tie line (Reference EC-10069), a weld reference system was not established. Failure to establish a weld reference system for these Section XI Code Class 2 piping welds is a violation of 10 CFR 50.55a(g)4. Because this violation was of very low safety significance and it was entered into the licensee's CAP as CR PLP-2010-05229, it is being treated as a NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy (NCV 05000255/2010005-01, Pipe Welds Not Incorporated into the Inservice Inspection Program).

.2 Reactor Pressure Vessel Upper Head Penetration Inspection Activities

a. Inspection Scope

For the reactor vessel head, a bare metal visual examination and a non-visual examination was required this outage pursuant to 10 CFR 50.55a(g)(6)(ii)(D).

The inspectors observed the bare metal visual examination conducted on the reactor vessel head at each of the 54 penetration nozzles to determine if the activities were conducted in accordance with the requirements of ASME Code Case N-729-1 and 10 CFR 50.55a(g)(6)(ii)(D). Specifically, to determine:

- if the required visual examination scope/coverage was achieved and limitations (if applicable were recorded), in accordance with the licensee procedures;
- if the licensee criteria for visual examination quality and instructions for resolving interference and masking issues were adequate; and
- for indications of potential through-wall leakage, that the licensee entered the condition into the corrective action system and implemented appropriate corrective actions.

The inspectors observed the non-visual examinations conducted on the reactor vessel head at Penetrations 27, 28, 29, and 34 to determine if the activities were conducted in accordance with the requirements of ASME Code Case N-729-1 and 10 CFR 50.55a(g)(6)(ii)(D). Specifically, to determine:

- if the required examination scope (volumetric and surface coverage) was achieved and limitations (if applicable were recorded), in accordance with the licensee procedures;
- if the ultrasonic examination equipment and procedures used were demonstrated by blind demonstration testing; and
- for indications or defects identified, that the licensee documented the conditions in examination reports and/or entered this condition into the corrective action system and implemented appropriate corrective actions.

For indications accepted for continued service, that the licensee evaluation and acceptance criteria were in accordance with the ASME Section XI Code, 10 CFR 50.55a(g)(6)(ii)(D) or an NRC approved alternative.

In 2004 the licensee identified through-wall cracks in the J-groove welds of vessel head penetration nozzles No. 29 and No. 30 and performed welded repairs. The NRC review of these weld repairs was documented in NRC IR 05000255/2004012. Welded head repairs have not occurred since the 1994 nozzle repairs. Therefore, no NRC review was completed for this inspection procedure attribute.

b. Findings

Introduction: A finding of very low safety significance (Green) and associated NCV of 10 CFR Part 50 Appendix B, Criterion V, “Instructions, Procedures and Drawings,” was identified by the inspectors for the licensee’s failure to follow Procedure CEP-NDE-0955, “Visual Examination of Bare-Metal Surfaces,” and perform a bare metal visual examination of vessel head penetration nozzles Nos. 1 and 3 within 4 feet. Instead, the

licensee performed the examination at approximately 5 feet and the illumination level at this distance had not been demonstrated as adequate to detect PCS leakage.

Description: On October 17, 2010, the inspectors identified that the licensee failed to follow Procedure CEP-NDE-0955, "Visual Examination of Bare-Metal Surfaces," to ensure that evidence of PCS leakage could be detected at nozzles Nos. 1 and 3.

During observation of the licensee's bare metal visual examination to detect evidence of head penetration nozzle leakage in accordance with Code Case N-729-1, the inspectors noted that the vessel head area was not well illuminated. In particular, areas near the top of the head and center nozzles (i.e., nozzles Nos. 1 and 3) could not be seen due to the lack of ambient light. The Code Case N-729-1 describes the bare metal visual head examination as a Visual Examination and sufficient illumination must be demonstrated by resolving 0.105 inch high lower case alpha numeric characters. Just prior to commencing the bare metal visual head examination, the licensee's examiner demonstrated adequate illumination at 4 feet by applying supplemental light from a portable light source to resolve lower case alpha numeric characters less than 0.105 inches tall on a visual acuity card. For nozzles Nos. 1 and 3 near the center of the head, the license's examiner used a portable light to complete the visual examination from approximately 54 to 60 inches, which exceeded the maximum distance of 4 feet allowed by the Procedure CEP-NDE-0955, "Visual Examination of Bare-Metal Surfaces." Because illumination levels had not been demonstrated as adequate for this distance, the inspectors were concerned that the licensee would not be able to detect evidence of PCS leakage (e.g., boric acid deposits). As a corrective action, the licensee's examiner repeated the bare metal visual examination of nozzles Nos. 1 and 3 and surrounding head surfaces at a distance of less than 4 feet and did not identify any evidence of PCS leakage.

Analysis: The inspectors determined that the licensee's failure to perform a bare metal visual examination of vessel head penetration nozzles Nos. 1 and 3 within 4 feet was contrary to the requirements of Procedure CEP-NDE-0955, "Visual Examination of Bare-Metal Surfaces," and was a performance deficiency.

The finding was determined to be more than minor because the finding, if left uncorrected, would become a more significant safety concern. The inspectors noted that the licensee's lead examiner had performed the previous head bare metal visual examination and would likely be used for future bare metal visual head examinations. Therefore, absent NRC identification, the licensee would have continued to perform inadequate examinations of the surfaces of the vessel head near nozzles Nos. 1 and 3, which could allow through-wall nozzle cracks to go undetected. Undetected cracks returned to service would place the vessel head at increased risk for leakage and/or nozzle failure, which would affect the safety of an operating reactor. Based upon review of IMC 0612, Appendix B, "Issue Screening," the inspectors determined the finding affected the Initiating Events Cornerstone attribute of Equipment Performance (Barrier Integrity). In accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase I - Initial Screening and Characterization of findings," Table 3b "Significance Determination Process Phase 1 Screening Worksheet for Initiating Events, Mitigation Systems and Barriers Cornerstones" this represented a degraded cornerstone that required further screening in accordance with Table 4a – "Characterization/Worksheet for Initiating Events, Mitigating Systems, and Barrier Integrity Cornerstones."

The inspectors determined the finding could be evaluated using the Significance Determination Process in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase I - Initial Screening and Characterization of findings," Table 4a for the Initiating Events Cornerstone. The licensee promptly corrected this issue by repeating the examination of nozzles Nos. 1 and 3, in accordance with the procedure to confirm that no evidence of nozzle leakage existed. The inspectors answered "No" to the Phase I screening question "Assuming worst case degradation, would the finding result in exceeding the TS limit for any PCS leakage or could the finding have likely affected other mitigation systems resulting in a total loss of their safety function assuming the worst case degradation?" Therefore, the finding screened as having very low safety significance (Green).

This finding has a cross-cutting aspect in the area of Human Performance, Work Practices, because the licensee did not effectively communicate expectations regarding procedural compliance and personnel following procedures (IMC 0310, Item H.4(b)). Specifically, the failure to perform a bare metal visual examination of vessel head penetration nozzles Nos. 1 and 3 within 4 feet occurred because the licensee's management staff did not adequately stress or enforce procedure adherence for this activity. In particular, Procedure CEP-NDE-0955 was issued as an "Informational Use" type procedure that was not required to be present at the worksite and thus allowed licensee staff to rely on memory to perform the procedural steps. The inspectors determined the primary cause of the finding based upon discussions with the licensee's lead NDE Level III certified examiner, review of Procedure CEP-NDE-0955 and observation of the bare metal visual reactor vessel head examination.

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

Paragraph 5.4.2 of CEP-NDE-0955 "Visual Examination of Bare-Metal Surfaces" required "The direct visual examination shall be performed at a distance not greater than 4 feet from the component at an angle not less than 30 degrees."

Contrary to the above, on October 17, 2010, for approximately 30 minutes, the licensee performed a direct visual examination of nozzles Nos. 1 and 3 at a distance greater than 4 feet. Failure to follow Procedure CEP-NDE-0955 is a violation of 10 CFR Part 50 Appendix B, Criterion V. Because this violation was of very low safety significance and it was entered into the licensee's CAP as CR PLP-2010-05188, this violation is being treated as an NCV, consistent with Section 2.3.2 of the NRC Enforcement Policy (NCV 05000255/2010005-02, Inadequate Examination of Head Penetration Nozzles Nos. 1 and 3).

Corrosion Not Evaluated During bare metal visual Examination of the Reactor Vessel Head

On October 17, 2010, the during the licensee's bare metal visual examination to meet Code Case N-729-1, the inspectors observed areas of surface corrosion on the vessel head that were not caused by vessel head penetration nozzle leakage. The licensee believed this corrosion was caused by leakage of water sources above the head which

occurred prior to their 2003 baseline head inspection. In CAP 034719, the licensee documented the completion of the 2003 bare metal visual examination of the vessel head and identified boric acid stain between nozzle penetrations Nos. 1 and 3 and scaling (rust) which exists on the reactor head surface and was most significant in the vicinity of nozzle penetration No. 17. The licensee concluded that this surface condition was characteristic of a 30 year old carbon steel component and that no evidence of through-wall nozzle leakage existed. The licensee documented in CAP 034719, that the head was satisfactorily inspected, that stains were removed to allow inspection of underlying metal and that the scaling present, did not appear to impact the base metal to any significant depth.

October 10, 2008, was the effective date of the revision to 10 CFR 50.55a(g)(6)(ii)(D), which first required the licensee to implement Code Case N-729-1 that required a visual examination (also known as a bare metal visual) head examination. On April 7, 2009, the licensee completed the first bare metal visual head examination to meet Code Case N-729-1 requirements and documented the results in report VT-09-124. On October 17, 2010, the licensee completed the second bare metal visual head examination to meet Code Case N-729-1 requirements and documented the results in Report VT-10-088. For these examinations, the licensee did not record any areas of head corrosion (which was present) as “relevant conditions” and the examiners did not record an assessment or review of changes to the head condition (e.g., corrosion) that may have occurred since the 2003 baseline examination. Additionally, the licensee did not record areas of corrosion or other deposits present on the vessel head surface as limitations with respect to completing a visual examination of at least 95 percent of the area defined in Figure 1, “Pressurized Water Reactor Vessel Upper Head Extent of Visual Examination” of Code Case N-729-1. The requirement to complete a visual examination of this area is identified in Footnote 1(a) for Table 1, “Examination Categories,” of Code Case N-729-1.

Paragraph 3141(c) of Code Case N-729-1 stated, “Relevant conditions for the purposes of the visual examination shall include areas of corrosion, boric acid deposits, discoloration, and other evidence of nozzle leakage.” Paragraph 3142.1.b.2 of Code Case N-729-1 required all relevant conditions be evaluated to determine the extent, if any, of degradation. The licensee interpreted this requirement to mean that corrosion, boric acid deposits, and discoloration were only relevant conditions for the Code Case N-729-1 visual examination if they were caused by boric acid leakage from J-groove welds and nozzles. For boric acid that drips from flanges or other sources above the reactor head, which contacts the head at normal operating temperatures, corrosion induced metal loss could potentially exceed 1 inch per year (reference Boric Acid Corrosion Guidebook, Revision 1 – Electric Power Research Institute (EPRI) Technical Report 1000975). The licensee staff believed that any corrosion induced by boric acid contacting the vessel head from sources above the head would have been properly addressed through their Corrective Action and Boric Acid Corrosion Control Programs.

The licensee’s analysis and conclusions for application of Code Case N-729-1 were based upon their review of the statement of considerations published in the Federal Register for the 10 CFR 50.55a(g)(6)(ii)(D) rule and were documented in CR-PLP-2010-05407. The inspectors discussed the licensee’s interpretation of Code Case N-729-1 definition of relevant conditions with the Office of Nuclear Reactor Regulation staff. This issue is an unresolved item (URI) pending completion of additional NRC reviews to

determine the applicability of relevant conditions for Code Case N-729-1 visual examination examinations (URI 05000255/2010005-03; Head Corrosion Not Evaluated). The inspectors agreed with the licensee's conclusion that the scaling and corrosion did not appear to impact the base metal to a significant depth and therefore, did not represent a current safety concern (e.g. challenge to structural integrity).

.3 Boric Acid Corrosion Control

a. Inspection Scope

The inspectors observed the licensee staff performing visual examinations to detect boric acid deposits and system leaks for portions of the PCS at the 649 foot and 611 foot elevation levels inside containment. The inspector observed these examinations to determine whether the licensee focused on locations where boric acid leaks can cause degradation of safety-significant components.

The inspectors reviewed the following licensee evaluations of components with boric acid deposits to determine if the affected components were documented and properly evaluated in the corrective action system. Specifically, the inspectors evaluated the licensee's corrective actions to determine if degraded components met the component Construction Code and/or the ASME Section XI Code.

- CR-PLP-2010-2010-02537; N-50 Incore Instrument Flange Assembly; and
- CR-PAL-2010-0045; CV-1057 Pressurizer Spray Valve from Loop 1B.

The inspectors reviewed the following corrective actions related to evidence of boric acid leakage to determine if the corrective actions completed were consistent with the requirements of the ASME Code Section XI and 10 CFR Part 50, Appendix B, Criterion XVI.

- CR-PLP-2010-02597, MO-3008 Boric Acid Leak; and
- CR-PLP-2009-01732, CV-1057 Boric Acid Leak.

b. Findings

No findings of significance were identified.

.4 Steam Generator Tube Inspection Activities

a. Inspection Scope

The NRC inspectors observed acquisition of eddy current data, interviewed eddy current data analysts, observed in-situ pressure test of a degraded tube at row 75 column 96 in steam generator B and reviewed documentation related to the steam generator Inservice Inspection program to determine if:

- in-situ steam generator tube pressure testing screening criteria used were consistent with those identified in the EPRI TR-107620, Steam Generator In-Situ Pressure Test Guidelines and that these criteria were properly applied to screen degraded steam generator tubes for in-situ pressure testing;
- in-situ pressure test records demonstrated pressure and hold times consistent with EPRI TR-107620, In-situ Pressure Test Guidelines;

- in-situ pressure test results were properly applied to steam generator tube integrity performance criteria identified in EPRI TR-107621;
- the numbers and sizes of steam generator tube flaws/degradation identified was consistent with the licensee's previous outage Operational Assessment predictions;
- the steam generator tube eddy current examination scope and expansion criteria were sufficient to meet the TSs, and the EPRI TR–107569, Pressurized Water Reactor Steam Generator Examination Guidelines;
- the steam generator tube eddy current examination scope included potential areas of tube degradation identified in prior outage steam generator tube inspections and/or as identified in NRC generic industry operating experience applicable to these steam generator tubes;
- the licensee identified new tube degradation mechanisms and implemented adequate extent of condition inspection scope and repairs for the new tube degradation mechanism;
- the licensee implemented repair methods which were consistent with the repair processes allowed in the plant TS requirements and to determine if qualified depth sizing methods were applied to degraded tubes accepted for continued service;
- the licensee implemented an inappropriate "plug on detection" tube repair threshold (e.g., no attempt at sizing of flaws to confirm tube integrity);
- the licensee primary-to-secondary leakage (e.g., steam generator tube leakage) was below 3 gallons-per-day or the detection threshold during the previous operating cycle;
- the eddy current probes and equipment configurations used to acquire data from the steam generator tubes were qualified to detect the known/expected types of steam generator tube degradation in accordance with Appendix H, Performance Demonstration for Eddy Current Examination, of EPRI TR-107569, Pressurized Water Reactor Steam Generator Examination Guidelines;
- the licensee performed secondary side steam generator inspections for location and removal of foreign materials;
- the licensee implemented repairs for steam generator tubes damaged by foreign material; and
- foreign objects were left within the secondary side of the steam generators, and if so, that the licensee implemented evaluations which included the effects of foreign object migration and/or tube fretting damage.

b. Findings

No findings of significance were identified.

.5 Identification and Resolution of Problems

a. Inspection Scope

The inspectors performed a review of inservice inspection/steam generator related problems entered into the licensee's CAP and conducted interviews with licensee staff to determine if:

- the licensee had established an appropriate threshold for identifying inservice inspection/steam generator related problems;

- the licensee had performed a root cause (if applicable) and taken appropriate corrective actions; and
- the licensee had evaluated operating experience and industry generic issues related to inservice inspection and pressure boundary integrity.

The inspectors performed these reviews to evaluate compliance with 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requirements. The corrective action documents reviewed by the inspectors are listed in the Attachment to this report.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Resident Inspector Quarterly Review (71111.11Q)

a. Inspection Scope

On November 9, 2010, 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:

- radiation monitoring system issues; and
- 480 Volt AC.

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

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

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

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

b. Findings

No findings were identified.

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

a. Inspection Scope

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

- orange risk due to reduced inventory for steam generator dam installation;
- orange risk for reduced inventory and switchyard work;
- orange risk for vacuum fill and reduced inventory;
- yellow risk to repair diesel supports; and
- risk associated with emergent repair of containment fan V-1a.

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 five samples as defined in IP 71111.13-05.

b. Findings

Introduction: A finding of very low safety significance (Green) and associated NCV of 10 CFR 50.65 a(4) was self-revealed for failure to properly manage and assess risk when operators received service water low pressure alarms during reduced inventory operations. An operator opened a service water valve in a section of the main lube oil system that had not been filled and vented, which resulted in the pressure drop and subsequent entry into an off-normal procedure.

Description: During the 1R21 refueling outage on October 23, 2010, the plant was in reduced inventory and orange risk for a PCS vacuum fill evolution. The desired reactor level was attained, but upon commencing the vacuum fill, several difficulties were experienced in regards to level indication and the drawing of adequate vacuum. During this evolution, the work control center authorized completion of preventative maintenance activities requiring the stroking of service water valves. Specifically, two of the valves considered during this time were MV-SW135 Component Cooling Water heat exchanger outlet bypass) and MV-SW201 (turbine lube oil cooler outlet). Given the current plant condition, a lot of focus was placed on the plant impact of stroking MV-SW135 as that could potentially affect shutdown cooling. The Work Control Center Senior Reactor Operator (SRO) aligned with the control room on the status of MV-SW135 and the potential impact and determined since the valve was isolated, there would be no impact. The SRO then assigned the Auxiliary Operator to stroke MV-SW135 and the remaining two valves on the list. The other two valves consisted of main lube oil cooling valves, which included MV-SW201. According to the SRO and Auxiliary Operator, very little discussion took place regarding the main lube oil valves and potential impact, as the SRO thought the system had been filled and vented already (hence there would be no impact). The Auxiliary Operator stroked MV-SW135 with no issues. When stroking MV-SW201, the Auxiliary Operator found the valve closed and proceeded to open it. The sound of rushing water was heard as the valve started to open. The Auxiliary Operator expedited his stroke, cycling it open then shut. Since the system had not actually been filled yet, this resulted in critical and non-critical service water low pressure alarms. Upon receipt of the alarms, the Control Room Supervisor directed the standby service water pump started and entered the Loss of Service Water Off Normal Procedure. The standby pump started and restored header pressures to normal values. At the time, as is typical during shutdown operations, service water was cooling the service water/component cooling water heat exchanger. Component cooling water, in turn, was cooling the shutdown cooling flow used to control temperature of the primary coolant.

Analysis: The failure to manage risk, specifically activities that could affect shutdown cooling, that resulted in a reduction of service water pressure during the high-risk reduced inventory period was a performance deficiency warranting further evaluation in

the SDP. Specifically, this failure to manage risk directly impacted a system critical for PCS temperature control and complicated the shift's management of the plant during reduced inventory. The inspectors determined the issue was more than minor based in-part on example 7g of IMC 0612, Appendix E, which describes a condition where a safety function is significantly degraded without sufficient compensation. Additionally, as described in IMC 0612, Appendix B, the issue affected the Configuration Control attribute and impacted the Initiating Events Cornerstone objective of limiting the likelihood of events that upset plant stability and challenge critical safety functions in that proper configuration control was not maintained over the shutdown equipment lineup.

The inspectors utilized IMC 0609, Appendix G, Shutdown Operations Significance Determination Process, to determine the significance of the finding since the plant was in a refueling outage. Using Attachment 1 (Phase 1 screening for Shutdown SDP) to Appendix G, Checklist 3, the inspectors determined that the support systems for decay heat removal were impacted under the 'Equipment' section of the Core Heat Removal Guidelines. However, since the pressure drop caused alarms but did not deteriorate to the point where an additional pump would have automatically started, the inspectors concluded there was not an increase in the likelihood that a loss of decay heat removal would occur due to the failure of the service water system. Additionally, the finding did not represent a condition where degraded decay heat removal system performance would be masked. Therefore, the inspectors determined that a quantitative risk assessment was not required since adequate mitigation capability existed and there was no loss of control. The issue screened Green using Figure 1 of Appendix G, or of very low safety significance.

A contributing cause of the finding was associated with the cross-cutting aspect in Work Control within the Human Performance area. The licensee did not appropriately coordinate work activities by incorporating actions to address the impact of work on different job activities to assure plant performance. Specifically, the current status of the service water system was not ascertained, nor were potential impacts thoroughly evaluated, especially given the elevated risk status of the plant (H.3.(b)).

Enforcement: 10 CFR 50.65 a(4) requires, in part, that before performing maintenance, licensees must properly assess and manage the risk. Site Procedure GOP-14, Shutdown Cooling Operations, outlines requirements to manage risk during shutdown periods. Specifically, testing which could impact shutdown cooling is not allowed during reduced inventory. Contrary to these requirements, on October 23, 2010, the licensee performed work that lowered service water pressure during reduced inventory, causing the Operations shift to enter off-normal procedures for Loss of Service Water. The licensee restored service water pressure within a minute following the perturbation by starting a standby pump. The licensee documented the issue in their CAP as CR-PLP-2010-05516. Because this violation was of very low safety significance and was entered into the licensee's CAP, the violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy (NCV 05000255/2010005-04, Low Pressure Alarms During Reduced Inventory).

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- failure of auxiliary feedwater actuation on low steam generator level;
- turbine-driven auxiliary feedwater pump shaft issues during overhaul;
- containment spray and auxiliary feedwater control valve design evaluation; and
- emergency diesel generator turbocharger support cracks.

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

No findings were identified.

1R18 Plant Modifications (71111.18)

.1 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed the following temporary modification(s):

- temporary power to direct current bus with safety-related loads; and
- temporary modifications to incore instrumentation.

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 two temporary modification samples as defined in IP 71111.18-05.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

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

- containment sump post-cleaning;
- fast transfer modification;
- ED-01 battery replacement;
- breaker 152-115 maintenance; and
- T-hot spare installation.

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 five post-maintenance testing sample as defined in IP 71111.19-05.

b. Findings

No findings were identified.

1R20 Outage Activities (71111.20)

a. Inspection Scope

The inspectors reviewed the outage risk plan and contingency plans for refueling outage (RFO) 21, conducted October 3 through October 28 to confirm that the licensee had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense-in-depth. During the RFO, the inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over the outage activities listed below. Documents reviewed during the inspection are listed in the Attachment to this report.

- Licensee configuration management, including maintenance of defense-in-depth commensurate with the Outage Safety Plan for key safety functions and compliance with the applicable TS when taking equipment out of service;
- implementation of clearance activities and confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing;
- installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error;
- Controls over the status and configuration of electrical systems to ensure that TS and outage safety plan requirements were met, and controls over switchyard activities;
- monitoring of decay heat removal processes, systems, and components;
- controls to ensure that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system;
- reactor water inventory controls including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss;
- controls over activities that could affect reactivity;
- maintenance of secondary containment as required by TS;
- refueling activities, including fuel handling and sipping to detect fuel assembly leakage;
- startup and ascension to full power operation, tracking of startup prerequisites, walk down of the containment to verify that debris had not been left which could block emergency core cooling system suction strainers, and reactor physics testing; and
- licensee identification and resolution of problems related to RFO activities.

This inspection constituted one RFO 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:

- polar crane daily checks;
- in-service test of ‘B’ service water pump;
- control rod drop time testing;
- local leak rate testing of penetration MZ-66 (Containment isolation valve);
- safeguards system testing;
- turbine auxiliary feedpump testing (In-service testing); and
- auxiliary shutdown panel.

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, ASMEs 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 five routine surveillance testing sample, one inservice testing sample, and one containment isolation valve sample as defined in IP 71111.22, Sections -02 and -05.

b. Findings

Introduction: The inspectors identified an NCV of TS 5.4 for the licensee's failure to implement procedures recommended by Regulatory Guide 1.33. Specifically, the licensee failed to implement procedures for maintenance that could affect safety-related equipment in that the licensee did not perform the daily crane check on the main hook for the polar crane until prompted by the inspectors.

Description: On October 20, 2010 the inspectors observed the daily tests on the containment polar crane. The licensee intended to move the reactor vessel head from the inspection stand and to the reactor vessel. During the daily checks, the worker performing the check did not test the main hook as part of the checks. Since the main hook would be used for the head move, the inspector asked the worker when the main hook would be tested. The worker stated that he was using the auxiliary hook and that the main hook would be tested prior to the head move by the crane operator performing the head move. The inspector also noted that the worker testing the crane was unfamiliar with the requirements and features of the crane. The worker used the Entergy checklist from EN-MA-119, Material Handling; however, this check list contained little detail and was not specific to the polar crane.

After completion of the test, the inspector inquired when the test of the main hook would be completed. The outage control center and personnel involved with the head lift were unaware that the main hook had not been tested and the licensee proceeded with the head move preparations including connecting the main hook to the head lift rig. After additional inquiries from the inspector, the licensee confirmed that the main hook had not been tested and the licensee removed main hook from the lift rig. The crane operator then performed testing of the main hook.

The inspectors noted that the licensee has had numerous issues with the polar crane, including suspended loads in RFO 19 and 20. In addition, the inspectors had previously identified improper daily testing of the L-3 (spent fuel pool crane) in March 2008. Therefore, the inspectors concluded that the licensee has programmatic issues in the proper testing and maintenance of cranes.

Analysis: The inspectors determined that the failure to perform daily checks on the main hook of the polar was a performance deficiency that warranted a significance determination. In accordance with IMC 0612, Appendix B, the inspectors compared the issue to examples in Appendix E. Although none of the examples directly matched the issue of concern, examples J and K describe issues that would be more than minor if significant programmatic deficiencies exist that could lead to worse errors if left uncorrected. The inspectors determined that the issue represented a programmatic deficiency because:

- The crane operator was unfamiliar with the daily check requirements;
- the licensee did not ensure testing of the main hook until prompted by the inspectors;

- the polar crane has a history of reliability issues and is considered to be maintenance rule A(1) due to these issues;
- the procedure provided only general details on the daily checks; and
- the prior history of improper conduct of crane daily checks.

Further, the inspectors determined that the failure to perform daily checks was more than minor because the issue could lead to significant safety concerns if left uncorrected. The issue impacts the initiating event cornerstone in that a load drop could result in a failure of the primary coolant system boundary. The licensee's operating requirements Manual, 3.21, stipulates that Heavy loads shall not be moved unless the potential for a load drop is extremely small as defined in Generic Letter 85-11. Generic Letter 85-11 concluded that the potential for load drops is extremely small based, in part, on performance of inspections included in section 5.1.1 of NUREG-0612. Daily crane checks are included in NUREG-0612; therefore, omission or ineffective performance of the daily checks could result in a condition where the potential for a load drop can no longer be considered extremely small. The inspectors concluded that Appendix G, shutdown risk SDP, did not provide adequate guidance since the appendix does not address crane related issues, and the finding did not impact inventory control or shutdown cooling. The inspectors recommended, and regional management approved, use of Appendix M to assess the significance of the finding. Since a satisfactory inspection was completed prior to the heavy load lift, no load drop occurred and no significant issues were identified with the polar crane during the inspection, the inspectors concluded the finding was of very low safety significance, Green. Since the failure to perform the daily check on the main hook resulted, in part, from ineffective coordination between personnel performing load moves, the inspectors concluded that there is an associated cross-cutting aspect in human performance, work control, appropriate coordination of work activities. H.3(b).

Enforcement: Technical Specification 5.4 requires, in part, that the licensee implement and maintain procedures recommended in regulatory Guide 1.33. Regulatory Guide 1.33 recommends procedures for maintenance that can affect the performance of safety-related equipment. The licensee developed procedure FHS-M-24, Movement of Heavy Loads in Containment Building Area, to implement requirements for heavy load movement in containment. This procedure requires, in part, that the heavy load person in charge verify daily crane checks are performed. Contrary to this requirement, on October 20, 2010 the licensee failed to verify completion of testing of the main hook on the polar crane. The licensee failed to perform a check of the main hook prior to authorizing the head lift. The procedure used to perform checks lacked details regarding the polar crane features to be tested on a daily basis. Further, the individual who performed the initial daily check was not familiar with the features to be checked. Therefore, the inspectors concluded that the licensee had not implemented the required procedure. The maintenance could affect the performance of safety-related equipment, e.g., primary coolant piping, and a load drop would damage the safety-related equipment. Controls for heavy load lifts are stipulated in Section 3.21 of the Operating Requirements Manual, a document described in the UFSAR. The Operating Requirements Manual requires that inside containment, heavy loads shall not be moved unless the potential for a load drop is very low as defined in Generic Letter 85-11. Generic Letter 85-11 concluded that the potential for a load drop was very small, in part due to meeting requirements of NUREG-0612 Section .1.1. NUREG-0612, Section 5.1.1 requires, in part, inspection of cranes, included inspections prior to movements of heavy loads. The licensee documented the issue in their CAP as CR-PLP-2010-5350.

Because this violation was of very low safety significance and was entered into the licensee's CAP, the violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy (NCV 05000255/2010005-05, Failure to Perform Daily Crane Checks).

## 2. RADIATION SAFETY

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

This inspection constituted one complete sample as defined in IP 71124.01-05.

.1 Inspection Planning (02.01)

a. Inspection Scope

The inspectors reviewed all licensee performance indicators for the Occupational Exposure Cornerstone for followup. The inspectors reviewed the results of radiation protection program audits (e.g., licensee's quality assurance audits or other independent audits). The inspectors reviewed any reports of operational occurrences related to occupational radiation safety since the last inspection. The inspectors reviewed the results of the audit and operational report reviews to gain insights into overall licensee performance.

b. Findings

No findings were identified.

.2 Radiological Hazard Assessment (02.02)

a. Inspection Scope

The inspectors determined if there have been changes to plant operations since the last inspection that may result in a significant new radiological hazard for onsite workers or members of the public. The inspectors evaluated whether the licensee assessed the potential impact of these changes and has implemented periodic monitoring, as appropriate, to detect and quantify the radiological hazard.

The inspectors reviewed the last two radiological surveys from selected plant areas and evaluated whether the thoroughness and frequency of the surveys where appropriate for the given radiological hazard.

The inspectors conducted walkdowns of the facility, including radioactive waste processing, storage, and handling areas to evaluate material conditions and performed independent radiation measurements to verify conditions.

The inspectors selected the following radiologically risk-significant work activities that involved exposure to radiation.

- Radiation Protection (RP) Activities in Containment;
- Scaffolding Activities in Containment;
- Refuel Project: RX Vessel Disassembly; and
- S/G Primary Side Activities.

For these work activities, the inspectors assessed whether the pre-work surveys performed were appropriate to identify and quantify the radiological hazard and to establish adequate protective measures. The inspectors evaluated the radiological survey program to determine if hazards were properly identified, including the following:

- identification of hot particles;
- the presence of alpha emitters;
- the potential for airborne radioactive materials, including the potential presence of transuranics and/or other hard-to-detect radioactive materials (This evaluation may include licensee planned entry into non-routinely entered areas subject to previous contamination from failed fuel.);
- the hazards associated with work activities that could suddenly and severely increase radiological conditions and that the licensee has established a means to inform workers of changes that could significantly impact their occupational dose; and
- severe radiation field dose gradients that can result in non-uniform exposures of the body.

The inspectors observed work in potential airborne areas and evaluated whether the air samples were representative of the breathing air zone. The inspectors evaluated whether continuous air monitors were located in areas with low background to minimize false alarms and were representative of actual work areas. The inspectors evaluated the licensee's program for monitoring levels of loose surface contamination in areas of the plant with the potential for the contamination to become airborne.

b. Findings

No findings were identified.

.3 Instructions to Workers (02.03)

a. Inspection Scope

The inspectors selected various containers holding non-exempt licensed radioactive materials that may cause unplanned or inadvertent exposure of workers, and assessed whether the containers were labeled and controlled in accordance with 10 CFR 20.1904, "Labeling Containers," or met the requirements of 10 CFR 20.1905(g), "Exemptions To Labeling Requirements."

The inspectors reviewed the following radiation work permits (RWP) used to access high radiation areas and evaluated the specified work control instructions or control barriers.

- RWP 20100400, RWP RP Activities in Containment;
- RWP 20100424, Scaffolding Activities in Containment;
- RWP 20100433, Refuel Project: RX Vessel Disassembly; and
- RWP 20100454, S/G Primary Side Activities

For these RWPs, the inspectors assessed whether allowable stay times or permissible dose (including from the intake of radioactive material) for radiologically significant work under each RWP were clearly identified. The inspectors evaluated whether electronic

personal dosimeter alarm set-points were in conformance with survey indications and plant policy.

The inspectors reviewed selected occurrences where a worker's electronic personal dosimeter noticeably malfunctioned or alarmed. The inspectors evaluated whether workers responded appropriately to the off-normal condition. The inspectors assessed whether the issue was included in the CAP and dose evaluations were conducted as appropriate.

For work activities that could suddenly and severely increase radiological conditions, the inspectors assessed the licensee's means to inform workers of changes that could significantly impact their occupational dose.

b. Findings

No findings were identified.

.4 Contamination and Radioactive Material Control (02.04)

a. Inspection Scope

The inspectors observed locations where the licensee monitors potentially contaminated material leaving the radiological control area and inspected the methods used for control, survey, and release from these areas. The inspectors observed the performance of personnel surveying and releasing material for unrestricted use and evaluated whether the work was performed in accordance with plant procedures and whether the procedures were sufficient to control the spread of contamination and prevent unintended release of radioactive materials from the site. The inspectors assessed whether the radiation monitoring instrumentation had appropriate sensitivity for the type(s) of radiation present.

The inspectors reviewed the licensee's criteria for the survey and release of potentially contaminated material. The inspectors evaluated whether there was guidance on how to respond to an alarm that indicates the presence of licensed radioactive material.

The inspectors reviewed the licensee's procedures and records to verify that the radiation detection instrumentation was used at its typical sensitivity level based on appropriate counting parameters. The inspectors assessed whether or not the licensee has established a de facto "release limit" by altering the instrument's typical sensitivity through such methods as raising the energy discriminator level or locating the instrument in a high-radiation background area.

The inspectors selected several sealed sources from the licensee's inventory records and assessed whether the sources were accounted for and verified to be intact.

The inspectors evaluated whether any transactions, since the last inspection, involving nationally tracked sources were reported in accordance with 10 CFR 20.2207.

b. Findings

No findings were identified.

.5 Radiological Hazards Control and Work Coverage (02.05)

a. Inspection Scope

The inspectors evaluated ambient radiological conditions (e.g., radiation levels or potential radiation levels) during tours of the facility. The inspectors assessed whether the conditions were consistent with applicable posted surveys, RWPs, and worker briefings.

The inspectors evaluated the adequacy of radiological controls, such as required surveys, radiation protection job coverage (including audio and visual surveillance for remote job coverage), and contamination controls. The inspectors evaluated the licensee's use of electronic personal dosimeters in high noise areas as high radiation area monitoring devices.

The inspectors assessed whether radiation monitoring devices were placed on the individual's body consistent with licensee procedures. The inspectors assessed whether the dosimeter was placed in the location of highest expected dose or that the licensee properly employed an NRC-approved method of determining effective dose equivalent.

The inspectors reviewed the application of dosimetry to effectively monitor exposure to personnel in high-radiation work areas with significant dose rate gradients.

The inspectors reviewed the following RWPs for work within airborne radioactivity areas with the potential for individual worker internal exposures.

- RWP 20100400, RWP RP Activities in Containment;
- RWP 20100424, Scaffolding Activities in Containment;
- RWP 20100433, Refuel Project: RX Vessel Disassembly; and
- RWP 20100454, S/G Primary Side Activities

For these RWPs, the inspectors evaluated airborne radioactive controls and monitoring, including potential for significant airborne levels (e.g., grinding, grit blasting, system breaches, entry into tanks, cubicles, and reactor cavities). The inspectors assessed barrier (e.g., tent or glove box) integrity and temporary high-efficiency particulate air ventilation system operation.

The inspectors examined the licensee's physical and programmatic controls for highly activated or contaminated materials (nonfuel) stored within spent fuel and other storage pools. The inspectors assessed whether appropriate controls (i.e., administrative and physical controls) were in place to preclude inadvertent removal of these materials from the pool.

The inspectors examined the posting and physical controls for selected high radiation areas and very high radiation areas to verify conformance with the occupational performance indicator.

b. Findings

No findings were identified.

.6 Risk-Significant High Radiation Area and Very High Radiation Area Controls (02.06)

a. Inspection Scope

The inspectors discussed with the radiation protection manager the controls and procedures for high-risk high radiation areas and very high radiation areas. The inspectors discussed methods employed by the licensee to provide stricter control of very high radiation area access as specified in 10 CFR 20.1602, "Control of Access to Very High Radiation Areas," and Regulatory Guide 8.38, "Control of Access to High and Very High Radiation Areas of Nuclear Plants." The inspectors assessed whether any changes to licensee procedures substantially reduce the effectiveness and level of worker protection.

The inspectors discussed the controls in place for special areas that have the potential to become very high radiation areas during certain plant operations with first-line health physics supervisors (or equivalent positions having backshift health physics oversight authority). The inspectors assessed whether these plant operations require communication beforehand with the health physics group, so as to allow corresponding timely actions to properly post, control, and monitor the radiation hazards including re-access authorization.

The inspectors evaluated licensee controls for very high radiation areas and areas with the potential to become a very high radiation area to ensure that an individual was not able to gain unauthorized access to the very high radiation area.

b. Findings

No findings were identified.

.7 Radiation Worker Performance (02.07)

a. Inspection Scope

The inspectors observed radiation worker performance with respect to stated radiation protection work requirements. The inspectors assessed whether workers were aware of the radiological conditions in their workplace and the RWP controls/limits in place, and whether their performance reflected the level of radiological hazards present.

The inspectors reviewed radiological problem reports since the last inspection that found the cause of the event to be human performance errors. The inspectors evaluated whether there was an observable pattern traceable to a similar cause. The inspectors assessed whether this perspective matched the corrective action approach taken by the licensee to resolve the reported problems. The inspectors discussed with the radiation protection manager any problems with the corrective actions planned or taken.

b. Findings

No findings were identified.

.8 Radiation Protection Technician Proficiency (02.08)

a. Inspection Scope

The inspectors observed the performance of the radiation protection technicians with respect to all radiation protection work requirements. The inspectors evaluated whether technicians were aware of the radiological conditions in their workplace and the RWP controls/limits, and whether their performance was consistent with their training and qualifications with respect to the radiological hazards and work activities.

The inspectors reviewed radiological problem reports since the last inspection that found the cause of the event to be radiation protection technician error. The inspectors evaluated whether there was an observable pattern traceable to a similar cause. The inspectors assessed whether this perspective matched the corrective action approach taken by the licensee to resolve the reported problems.

b. Findings

No findings were identified.

.9 Problem Identification and Resolution (02.09)

a. Inspection Scope

The inspectors evaluated whether problems associated with radiation monitoring and exposure control were being identified by the licensee at an appropriate threshold and were properly addressed for resolution in the licensee's CAP. The inspectors assessed the appropriateness of the corrective actions for a selected sample of problems documented by the licensee that involve radiation monitoring and exposure controls. The inspectors assessed the licensee's process for applying operating experience to their plant.

b. Findings

No findings were identified.

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

This inspection constituted a partial sample as defined in IP 71124.02-05.

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

a. Inspection Scope

The inspectors evaluated whether the licensee had established measures to track, trend, and if necessary to reduce, occupational doses for ongoing work activities. The inspectors assessed whether trigger points or criteria were established to prompt additional reviews and/or additional As-Low-As-Is-Reasonably-Achievable (ALARA) planning and controls.

b. Findings

No findings were identified.

.2 Radiation Worker Performance (02.05)

a. Inspection Scope

The inspectors observed radiation worker and radiation protection technician performance during work activities being performed in radiation areas, airborne radioactivity areas, or high radiation areas. The inspectors evaluated whether workers demonstrated the ALARA philosophy in practice (e.g., workers are familiar with the work activity scope and tools to be used, workers used ALARA low-dose waiting areas) and whether there were any procedure compliance issues (e.g., workers are not complying with work activity controls). The inspectors observed radiation worker performance to assess whether the training and skill level was sufficient with respect to the radiological hazards and the work involved.

b. Findings

No findings were identified.

## 4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Unplanned Transients per 7000 Critical Hours

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Transients per 7000 Critical Hours performance indicator for the period from the fourth quarter of 2009 through the third 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 and performance indicator reports for the period of the fourth quarter 2009 through the third quarter of 2010 to validate the accuracy of the submittals. The inspectors also reviewed the licensee’s condition report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings were identified.

.2 Safety System Functional Failures

a. Inspection Scope

The inspectors sampled licensee submittals for the Safety System Functional Failures performance indicator for the period from the fourth quarter of 2009 through the third quarter of 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, dated October 2009, and NUREG-1022, “Event Reporting Guidelines 10 CFR 50.72 and 50.73," definitions and guidance, were used. The inspectors reviewed the licensee’s operator narrative logs, operability assessments, maintenance rule records, selected condition reports, and event reports for the period of the fourth quarter of 2009 through the third quarter of 2010 to validate the accuracy of the submittals. The inspectors also reviewed the licensee’s condition report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one safety system functional failures sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index - Cooling Water Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI) - Cooling Water Systems Performance Indicator 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 October 2009 through September 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 cooling water system sample as defined in IP 71151-05.

b. Findings

No findings were identified.

.4 Reactor Coolant System Leakage

a. Inspection Scope

The inspectors sampled licensee submittals for the PCS Leakage performance indicator for the period from the fourth quarter of 2009 through the third quarter of 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, dated October 2009, were used. The inspectors reviewed the licensee's operator logs and PCS leakage tracking data for the period of the fourth quarter of 2009 through the third quarter of 2010 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's condition report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one primary coolant system leakage 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 followup, the inspectors performed a daily screening of items entered into the licensee's CAP. This review was accomplished through inspection of the station's daily condition report packages.

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

b. Findings

No findings were identified.

.3 Semiannual Trend Review

a. Inspection Scope

The inspectors performed a review of the 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 April 2010 through September 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 semiannual trend inspection sample as defined in IP 71152-05.

b. Findings

No findings were identified.

.4 Annual Sample: Review of Operator Workarounds

a. Inspection Scope

The inspectors evaluated the licensee's implementation of their process used to identify, document, track, and resolve operational challenges. Inspection activities included, but were not limited to, a review of the cumulative effects of the Operator Workarounds (OWAs) on system availability and the potential for improper operation of the system, for potential impacts on multiple systems, and on the ability of operators to respond to plant transients or accidents. The documents listed in the Attachment were reviewed to accomplish the objectives of the inspection procedure.

The inspectors reviewed both current and historical operational challenge records to determine whether the licensee was identifying operator challenges at an appropriate threshold, had entered them into their CAP and proposed or implemented appropriate and timely corrective actions which addressed each issue. Reviews were conducted to determine if any operator challenge could increase the possibility of an initiating event, if the challenge was contrary to training, required a change from long-standing operational practices, or created the potential for inappropriate compensatory actions. Additionally, all temporary modifications were reviewed to identify any potential effect on the functionality of mitigating systems, impaired access to equipment, or required equipment uses for which the equipment was not designed. Control room deficiencies, caution tag log, control room alarms, operator aids and locally posted procedures were also assessed to identify any potential sources of unidentified OWAs.

This review constituted one OWA annual inspection sample as defined in IP 71152-05.

b. Findings

No findings were identified.

.5 Selected Issue Followup Inspection: Consideration of Preconditioning in the Work Planning Process

a. Inspection Scope

Earlier in 2010, the inspectors identified maintenance activities where the potential for unacceptable preconditioning may not have been adequately evaluated by the licensee. Specifically, TSs surveillances were being credited while they were also being used as post-maintenance tests following diesel generator work. The inspectors evaluated the individual circumstances and determined that unacceptable preconditioning had not occurred. However, the inspectors determined that there may be weaknesses in the licensee's understanding and evaluation of preconditioning when planning work activities. The inspectors reviewed a sample of TSs surveillances that had been completed throughout the year and compared those to work scheduled on the components around the same time. The inspectors also reviewed corrective actions from the condition report generated to address the potential weaknesses in evaluating for preconditioning. Discussions were also held with operations and work management personnel. Based on the sample reviewed, no evidence of unacceptable preconditioning was found. Additionally, the inspectors found that proper guidance was in-place to address preconditioning and that as an enhancement, the licensee was planning on

adding training on preconditioning for operations and engineering personnel for the next cycle.

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.

.6 Selected Issue Followup Inspection: Cancellation of Document Revision Notices

a. Inspection Scope

As part of the triennial fire protection inspection, documented in report No. 05000255/2010-008, the inspectors identified that the licensee had cancelled document revision notices without updating the affected documents. The licensee determined that an error had occurred during the transition from the Portal J database to the Asset Suite/Merlin database that potentially affected 205 Document Revision Notices (DRNs). The licensee subsequently determined 62 DRNs required additional action. The inspectors reviewed a sample of the DRN's that were affected to determine if the failure to update the affected documents created a safety concern. Based on the review, the inspectors did not identify any safety concerns. The licensee has incorporated the applicable DRNs into the affected documents.

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.

.7 Selected Issue Followup Inspection

a. Inspection Scope

An inspection was performed at the Entergy corporate office in Jackson, Mississippi, on June 14 through 17, 2010, to review the circumstances surrounding missed QC verification inspections documented in CR-HQN-2009-01184 and CR-HQN-2010-00013. The issue involved QC verification inspections performed during construction-related activities which were required as part of the Entergy quality oversight and verification programs. The inspection was performed to determine if the licensee had taken corrective actions commensurate with the significance of the identified issues, and to assess the impact, if any, on the operability of plant equipment caused by the missed inspections. This inspection was conducted by inspectors from Regions I, II, and IV, as well as a Senior Program Engineer from the Quality and Vendor Branch of the Office of Nuclear Reactor Regulation (NRR). The inspection covered all NRC-licensed sites owned by Entergy Operations, Inc., including Arkansas Nuclear One, James A. Fitzpatrick, Grand Gulf Nuclear Station, Indian Point Units 2 and 3, Palisades Plant, Pilgrim Nuclear Power Station, River Bend Station, Vermont Yankee, and Waterford 3.

The inspectors reviewed root cause analyses documented in Condition Reports (CR) CR-HQN-2009-01184 and CR-HQN-2010-00013, and the results of the licensee's extent of condition reviews and plant impact assessments. The inspectors also independently assessed the potential impacts of the missed inspections on the operability of plant equipment by reviewing all of the examples identified by the licensee, and by independently reviewing completed modifications and work orders to identify additional examples. The inspectors also reviewed the corrective action database to assess reported equipment failures in order to assess whether the failure might have involved missed QC verification inspections.

The inspectors assessed causal factors that may have contributed to missing QC verification inspections. This assessment included reviewing the Entergy Quality Assurance Program Manual (QAPM) requirements, changes made to the QAPM, and the level of agreement between the QAPM and its implementing procedures.

Specific documents reviewed are listed in the attachment.

b. Findings

Background: The inspectors identified problems with the implementation of elements of the Quality Assurance (QA) Program that affected the fleet of Entergy Operations Inc., (hereafter referred to as "Entergy") nuclear power plants that are licensed by the NRC. While the plant organizations are NRC licensees, Entergy also has corporate groups which are not NRC licensees that are actively involved in some activities affecting sites, including program and procedure changes. Entergy adopted a business strategy of adopting standard programs and procedures at all fleet plants.

On October 30, 2009, the NRC discussed with Entergy the initial concerns about whether QC verification inspections were being performed consistently for the types of work that require that level of inspection. Both the non-licensed and licensed Entergy organizations responded with an appropriate review of the issues. Entergy's review of work documents that were potentially affected was extensive at each site. Entergy's total review examined over 320 Engineering Change documents and 2676 Work Orders. Of the 30 Work Orders identified to have QC verification inspection deficiencies affecting eight safety-related design changes, all 30 were determined by Entergy to have sufficient documentation to provide confidence that the equipment was installed correctly. Specific corrective actions were identified and implemented to ensure that QC verification inspections would be included in current and future work documents, including procedure enhancements.

The information provided to the NRC was used to perform a focused inspection in order to assess the impact of the missed verification inspections at each of the NRC-licensed facilities. The inspection documented below independently assessed the potential impact of missed QC verification inspections on the operability of plant equipment, as well as assessing details of QA Program for the Entergy fleet.

Two findings were identified during this inspection. These findings involved missed QC verification inspections at seven Entergy sites, and the assignment of individuals to the QA Manager position that did not meet the experience and qualification requirements at eight sites. Only the findings impacting this licensee are described below.

The inspectors concluded that the Entergy fleet organizational structure and Entergy strategy of adopting standardized procedures across the fleet were contributing factors to the findings. Specifically:

- Changes to adopt the standard fleet QA program created a partial conflict with existing requirements for worker qualifications at some sites. The process for creating and revising standardized fleet procedures and programs used to meet NRC requirements must ensure that site-specific regulatory requirements and commitments are properly addressed for all sites.
- Changes that removed details from existing site-specific QA and QC program implementing procedures while shifting to standardized fleet procedures contributed to the finding involving missed QC verification inspections. Condition reports at individual sites regarding problems related to this issue were not recognized collectively as symptoms of a problem with these procedures because they were addressed at the site level.

b.1 Failure to Perform Required Quality Control Inspections

Introduction: The inspectors identified a Green NCV of 10 CFR 50, Appendix B, Criterion X, "Inspection," for the failure to ensure that Quality Control verification inspections were included in quality-affecting procedures and work instructions for construction-like work activities as required by the Quality Assurance Program.

Description: In response to the inspectors request for information concerning implementation of the quality oversight and verification programs, the licensee performed a review of a representative sample of engineering changes and work order tasks issued between 2006 and 2009. The licensee's review included performing equipment walkdowns, evaluating rework rates and human error rates, and causes for failures of significant components. Based on the results of these reviews, Entergy initiated condition reports at the various sites to document problems with QC verification activities and failures to perform required QC reviews of safety-related engineering changes and construction related work activities. Entergy's investigation concluded that procedures contained inadequate guidance, which resulted in inconsistent implementation of the QC Program. Specifically, some safety-related design change work orders were not reviewed to determine whether QC verification inspections were required, and some safety-related design change work orders did not include all required QC verification inspections. These examples were documented in CR-HQN-2009-01083, -01084, -01085, -01093, -01096, -01140, -01169, -01170, -01184, and -01188.

Additional issues identified by Entergy's review included:

- Managers in maintenance organizations did not have a detailed understanding of QC responsibilities, required inspections, or what documents required review (CR HQN-2009-01150).
- A weakness was identified in the process for ensuring proper approval of contract QC inspection personnel at all Entergy sites. Procedure EN-QV-111, "Training and Certification of Inspection/verification and examination Personnel," Section 4.0 [1], required that the Manager responsible for Quality Assurance or designee at each location is responsible for approving ANSI N45.2.6 certification of QC inspection personnel. In practice, contract QC inspectors' qualifications were not approved by the QA Manager prior to November of 2009. This

was determined to be a minor violation because the ANSI Level III inspector at each site was documenting that the contract QC personnel had the necessary qualifications to perform the inspections for which they were contracted. This issue was entered into the licensee's CAP as CR-HQN-2009-1091.

- At individual Entergy plants, 27 CRs were written in 2008 and 2009 to document potentially missed QC verification inspections or missed reviews to consider QC verification inspections prior to the NRC engaging Entergy on this issue. Of those, seven were actual missed inspections (CR-RBS-2009-05041, CR-JAF-2008-03648, and CR-PNP-2008-00916 and CR-PNP-2008-03922, CR-PNP-2009-01798, CR-PNP-2009-02059, and CR-PNP-2009-02255). Multiple CRs documented work package quality issues that impacted the ability to identify appropriate QC verification inspection requirements.
- Two examples of QC programmatic issues were identified, assigned to Entergy headquarters, and not properly addressed (CR-ANO-C-2009-01884, and CR-HQN-2009-00178). These were considered examples of the violation discussed below.
- River Bend Station was using notification points instead of designating specific QC hold points (CR-RBS-2008-04685). This is further discussed in Section 4OA7.
- Insufficient resources were assigned or qualified to perform the required tasks at Grand Gulf Nuclear Station and River Bend Station. River Bend Station operated with a single QC Level II inspector for more than 3 years, and Grand Gulf Nuclear Station's two QC inspectors did not have all of the discipline certifications for which they were conducting inspections (CR-HQN-2009-01140 and CR GGN-2009-06575). While these conditions were inappropriate, the inspectors did not identify a separate violation associated with these issues. To the extent that the individuals at River Bend Station were evaluating work documents for QC verification inspections and not correctly identifying those verifications, those examples are part of the violation discussed below.
- Although equipment-related QC condition reports were addressed appropriately, QC programmatic issues were not always effectively addressed.
- QA audits and oversight activities for the QC Program missed opportunities to identify the findings of their investigation (CR-HQN-2009-01169, CR-HQN-2009-0153, and CR-HQN-2010-00013). In particular, the Entergy corporate ANSI Level III inspector was required to perform periodic surveillances of QC inspection activities to ensure the program is being adequately implemented and maintained, but these required surveillances were not performed in 2008 (CR-HQN-2009-00111). This is further discussed in Section 4OA7.

Subsequent to the identification of these deficiencies, Entergy initiated prompt corrective actions to ensure that appropriate safety-related, engineering changes and non-routine maintenance work orders were identified and routed to the Maintenance Inspection Coordinator for evaluation and inclusion of QC verification inspections in accordance with the revised requirements of procedure EN-WM-105, "Planning." These corrective actions and actions to preclude recurrence were collectively documented in the following Level A condition reports: CR-HQN 2009-01184, dated December 21, 2009 and CR-HQN-2010-0013, dated January 6, 2010.

In-office NRC reviews identified the need to conduct further inspection activities. On June 14 through 17, 2010, the inspectors conducted a focused review of work performed

at each NRC-licensed Entergy site to assess whether examples of missed QC verification inspections identified by Entergy during their review had the potential to have impacted the operability of important plant equipment. The inspectors also reviewed the corrective action database and maintenance records to independently assess the rigor of the Entergy review and to identify additional examples of missed QC verification inspections. The inspectors identified no additional examples, and concluded that the Entergy reviews were sufficient to identify the scope of the problems and develop actions to address the causes.

The inspectors' reviewed specific work items whose scope met QAPM requirements to have had QC verification inspections but did not have the appropriate inspections. Based in part on interviews with Entergy personnel, the inspectors determined that procedural guidance for work planning was not sufficiently detailed or clear to ensure that work packages with construction-like activities would be reviewed by the specified QC personnel. These individuals were responsible for designating the QC inspections that were required by the QAPM.

The inspectors also identified numerous condition reports written at Entergy sites that documented improper implementation of QC verification inspections. Specific condition reports are listed in the attachment.

Analysis: The failure to ensure that adequate QC verification inspections were included in quality-affecting procedures and work instructions as required by the QA Program was a performance deficiency. This programmatic deficiency, if left uncorrected, could lead to a more significant safety concern in that the failure to check quality attributes could involve an actual impact to plant equipment. This issue affected the Design Control attribute of the Mitigating Systems Cornerstone because missed quality control inspections during plant modifications could impact the availability, reliability, and capability of systems needed to respond to initiating events. This performance deficiency was determined to have very low safety significance in Phase 1 of the SDP, since it was confirmed to involve a qualification deficiency that did not result in a loss of operability or functionality. Specifically, inspectors verified by sampling that work documents provided objective quality evidence that work activities that had missed quality control verifications were properly performed.

The inspectors determined that this performance deficiency involved a cross-cutting aspect related to the Human performance in Decision-making (H.1(a)), because the licensee did not have an effective systematic process for obtaining interdisciplinary reviews of proposed work instructions to determine whether QC verification inspections were appropriate.

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion X, "Inspection," requires, in part, that: "Examinations, measurements, or tests of material… shall be performed for each work operation where necessary to assure quality . If mandatory inspection hold points, which require witnessing or inspecting by the licensee's designated representative and beyond which work shall not proceed without the consent of the designated representative are required, the specific hold points shall be indicated in appropriate documents."

Entergy's QAPM, Revision 20, Section B.12., "Inspection" requires, in part, that: "Provisions to ensure inspection planning is properly accomplished are to be established. Planning activities are to identify the characteristics and activities to be

inspected, the inspection techniques, the acceptance criteria, and the organization responsible for performing the inspection. Provisions to identify inspection hold points, beyond which work is not to proceed without consent of the inspection organization, are to be defined."

Contrary to the above, from February 2006, to December 2009, the licensee failed to ensure that examinations, measurements, or tests of material were performed for each work operation where necessary to assure quality, and failed to include mandatory inspection hold points in appropriate documents. Specifically, multiple examples of Maintenance Work Orders and Engineering Change documents for construction-related activities involving safety-related systems structures and components were identified where witnessing or inspections were required to be performed to ensure quality, but these steps were not identified, included in the work documents, or performed as required QC hold points in the work instructions. Condition reports documenting the specific problems and examples of the violation included:

- CR-PLP-2009-05613
- CR-PLP-2009-05918
- CR-PLP-2009-05908
- CR-HQN-2009-01083
- CR-HQN-2009-01084
- CR-HQN-2009-01085
- CR-HQN-2009-01093
- CR-HQN-2009-01096
- CR-HQN-2009-01140
- CR-HQN-2009-01169
- CR-HQN-2009-01170
- CR-HQN-2009-01184
- CR-HQN-2009-01188

Because this issue was of very low safety significance and was entered into the CAP as CR-HQN 2009-01184 and CR-HQN-2010-0013, consistent with Section VI.A of the Enforcement Policy, this violation is being treated as NCV 05000255/2010005-06: Failure to Perform Required Quality Control Inspections.)

4OA5 Other Activities

.1 Reactor Coolant System Dissimilar Metal Butt Welds (Temporary Instruction 2515/172)

a. Inspection Scope

The NRC has issued several Bulletins and an Order since 2001 related to the occurrence of primary water stress corrosion cracking in PCS components and welds containing Alloy 600/82/182. In September of 2005 the EPRI issued MRP-139 "Primary System Piping Butt Weld Inspection and Evaluation Guidelines." MRP-139 provided licensee's with industry guidance for augmented volumetric examination of dissimilar metal butt welds in pressurized water reactor primary systems containing Alloy 600/82/182 materials susceptible to primary water stress corrosion cracking.

In June of 2008 the NRC performed a review of the dissimilar metal butt welds at the Palisades Nuclear Plant in accordance with Temporary Instruction (TI) – 2515/172,

"PCS Dissimilar Metal Butt Welds" Revision 0, to evaluate the licensee's implementation of MRP-139 for the dissimilar metal butt welds (Reference NRC Report 05000255/2008003) and associated inspection requirements were completed. Subsequently, on May 27, 2010, the NRC issued Revision 1 of TI 2515/172 to evaluate revised licensee plans for inspection and mitigation of the dissimilar metal butt welds. Therefore, from October 4 through 21, 2010, the inspectors performed a review in accordance with select portions of TI 2515/172 as described below:

- Section 03.01 of TI-172 – Implementation of the MRP-139 Baseline Inspections. The inspectors reviewed the licensee's changes to their baseline inspection schedule to determine if these changes deviated from MRP-139;
- Section 03.02 of TI-172 – Evaluation of Volumetric Examinations. The inspectors observed licensee volumetric examination of a safety injection system safe end-to-nozzle dissimilar metal butt welds operating at cold leg temperature. The inspectors also reviewed volumetric examination records of a pressurizer surge line nozzle and hot leg drain line nozzle dissimilar metal butt welds operating at hot leg temperatures. The inspectors conducted these reviews to determine if these examinations were completed in accordance with Section 5.1 of MRP-139; and
- Section 03.06 of TI-172 – Implementation of the Inservice Inspections. The inspectors reviewed the licensee's changes to the Inservice Inspection Program schedules for dissimilar metal butt welds to determine if these changes deviated from MRP-139 examination requirements.

The documents reviewed by the inspector are listed in the Attachment to this report. Based on this inspection and previous NRC inspection referenced above, TI-172 Revision 1 is completed.

a. Observations

Summary: Palisades is a Combustion Engineering design with two loops each consisting of a Steam Generator, hot leg, and two cold legs with circulating pumps. A pressurizer is connected to the hot leg of the No. 1 Steam Generator by a surge line. In 1993, as a result of primary water stress corrosion cracking identified in a pressurizer Alloy 600 penetration with dissimilar metal butt welds, the licensee initiated the identification and ranking of the 251 Alloy 600 locations contained in the PCS. The ranking of the Alloy 600 locations was based on four main criteria: primary water stress corrosion cracking susceptibility, failure consequence, leakage detection margin, and radiation dose rates. Three Alloy 600 penetrations have been mitigated by mechanical stress improvement and have received volumetric examinations. No further mitigation was planned for the remaining susceptible Alloy 600 penetrations and associated dissimilar metal butt welds.

1. Evaluation of Temporary Instruction-172 Questions

a. For MRP-139 Baseline Inspections:

1. Have the baseline inspections been performed, or are they scheduled to be performed in accordance with MRP-139 guidance?

This portion of the TI was previously reviewed by the NRC and was not reviewed again during the period of this report.

2. Is the licensee planning to take any deviations from the MRP-139 baseline inspection scope, categorization, schedule, or method requirements of MRP-139? If so, what deviations are planned and what is the general basis for the deviation?

   MRP-139 identifies weld inspection Categories that define the frequency of examinations based upon system operating temperature, pipe diameter and based upon the mitigation or repair methods applied. The NRC had previously reviewed the licensee's MRP-139 Inspection Program to verify conformance with MRP-139 baseline inspection schedules. Subsequent to that inspection, a 2-inch diameter hot leg drain line (PCS-2-DRL-1H1-1) dissimilar metal butt welds examination originally scheduled for volumetric inspection in 2009 was moved to the 2010 refueling outage. This weld had not been previously examined by volumetric techniques and no deviation from MRP-139 was required for this examination schedule change.

b. For Each Volumetric Examination Inspected, was the Activity:

1. Performed in accordance with the MRP-139, Section 5.1 guidelines and consistent with NRC staff relief request authorization for weld overlaid welds?

   The inspectors observed the safety injection system safe-end-to-pipe dissimilar metal butt welds (PCS-12-SIS-2A1-15) examination and confirmed that it was performed in accordance with Section 5.1 of MRP-139. This weld had not been mitigated by weld overlays and was operating at cold leg temperatures.

   The inspectors reviewed the volumetric examination records of a pressurizer surge line safe-end-to-nozzle dissimilar metal butt welds (PCS-12-PSL-1H1-8) and hot leg drain line nozzle dissimilar metal butt welds (PCS-2-DRL-1H1-1) and confirmed that these welds were examined in accordance with Section 5.1 of MRP-139. These welds had not been mitigated by weld overlays and were operating at hot leg temperatures.

   The inspectors had previously observed and reviewed examinations completed on dissimilar metal butt welds operating at pressurizer temperatures as documented in NRC Report 05000255/2008003. Therefore, the TI inspection attribute associated with observation or review of these types of weld examinations was not applicable.

   The licensee had not performed weld inlays, onlays or overlays for dissimilar metal butt welds during this outage. Therefore, the TI inspection attributes associated with observation or reviews of these examinations was not applicable.

2. Performed by qualified personnel?

   Yes. The examinations observed and reviewed by the inspectors discussed above were completed by licensee vendor staff certified as Level II or Level III qualified ultrasonic examination examiners. Additionally, these examiners had been qualified for ultrasonic examination examinations of dissimilar metal butt welds in accordance with the Performance Demonstration Initiative Program, managed by EPRI. The Performance Demonstration Initiative Program issued

procedure and personnel qualification records confirmed that the ultrasonic examination process and personnel were capable of detecting and sizing flaws in material thicknesses applicable to the dissimilar metal butt welds examined. The Performance Demonstration Initiative program complies with the NRC mandated ASME Code, Section XI, Appendix VIII, requirements for performance demonstration of ultrasonic examination equipment and personnel.

3. Performed such that deficiencies were identified, dispositioned, and resolved?

   Yes. No flaws and no examination deficiencies were identified for theses dissimilar metal butt welds.

c. Weld Overlay Inspected:

   No weld overlays had been applied to dissimilar metal butt welds. Therefore, this attribute of the TI was not applicable.

d. Mechanical Stress Improvement

   This portion of the TI was previously reviewed by the NRC as documented in NRC Report 05000255/2008003. This portion of the TI was not applicable for this outage, because the licensee did not perform mechanical stress improvement to the dissimilar metal butt welds.

e. Application of Weld Onlays and Inlays

   This portion of the TI was not applicable, because the licensee has not applied onlays or inlays to mitigate primary water stress corrosion cracking of dissimilar metal butt welds during this outage.

f. Inservice Inspection Program

   This portion of the TI was previously reviewed by the NRC. Subsequent to that inspection, 12 inch diameter dissimilar metal butt welds examinations were moved from the 2009 refueling outage to 2010 in order to utilize phased array ultrasonic examination for dose reduction and improved characterization. No deviations from MRP-139 requirements were required for this change in examination schedule.

b. Findings

No findings of significance were identified.

.2 (Closed) Unresolved Item 05000255/2008009-03: Nonsafety Related Components Credited in Steam Generator Tube Rupture Accident Analysis

On December 4, 2008, the NRC completed a baseline component design bases inspection at the Palisades Nuclear Plant (ML090150569). The inspectors identified an unresolved item (URI) concerning the licensee crediting the use of nonsafety-related components in Steam Generator Tube Rupture (SGTR) Accident Analysis. Specifically, the inspectors identified that in the UFSAR (Chapter 14) analysis of the SGTR accident, the maximum off-site dose release for the SGTR accident was based on the nonsafety-related atmospheric dump valves being functional and capable of terminating the accident release. The inspectors noted that during a loss of offsite power condition, the

nonsafety-related air supply to the atmospheric dump valves actuator might not be available.

After the component design bases inspection, the inspectors requested assistance from the NRR in providing a position regarding reliance on nonsafety-related Atmospheric dump valves in the UFSAR Chapter 14 analysis for SGTR accident at the Palisades Nuclear Plant. In addition, the inspectors requested NRR to consider if a compliance backfit was warranted to restore the licensee into compliance. The staff from NRR reviewed the issue and provided a response to TIA 2009-003 by letter dated June 29, 2010 (ML101260128). In the response, NRR determined that the licensee's use of the nonsafety-related Atmospheric dump valves was compliant with their current licensing basis and that a compliance backfit was not warranted. However, the inspectors noted that in order to credit the use of the nonsafety-related Atmospheric dump valves, the licensee needed to provide a proceduralized alternate means to allow cooldown to cold shutdown assuming failure of the nonsafety-related equipment/component under consideration. The licensee determined that their alternate means to allow cooldown to cold shutdown assuming failure of the nonsafety-related equipment/component under consideration was the process of once-through-cooling.

During this inspection, the inspectors reviewed drawings, design basis documents, training material and procedures associated with once-through-cooling to determine if the chosen method was acceptable. Once-through-cooling is a form of feed-and-bleed which depends on the use of the pressurizer Power Operated Relief Valves and the Safety Injection Pumps to remove hot coolant, via the Power Operated Relief Valves, from the primary side and replace it with relatively colder water via the Safety Injection pumps.

During this review, the inspectors identified conflicting information in the UFSAR. Section 14.15.2.2 of the UFSAR stated that the operators open the atmospheric dump valves 30 minutes after the reactor trip to commence plant cooldown. In contrast Section 14.15.2.1, Section 14.15.2.3, and Table 14.15-3 indicated that the operator action occurred 30 minutes after the event initiation, that is, the tube ruptures. The discrepancy was documented by the licensee in their CAP as CR-PLP-2010-03857.

The inspectors reviewed applicable procedures to verify operators would be guided to use the safety-related pathway, once-through-cooling in the event the nonsafety-related Atmospheric dump valves Atmospheric dump valves were not available. The inspectors concluded the following:

- EOP-1.0, Standard Post Trip Actions," directed operators, upon diagnosis of a steam generator tube rupture, to EOP-5.0, "Steam Generator Tube Rupture Recovery;"
- within EOP-5.0, completion of the Safety Function Status Check Sheet would direct the operators to EOP-9.0, "Functional Recovery Procedure," due to a lack of PCS heat removal;
- within EOP-9.0, the operators would select a method of core heat removal using Resource Assessment Tree E (for the PCS and/Core Heat Removal Safety Function) in conjunction with operator training. If a steam generator is not available for cooling, the once-through-cooling method (Success Path HR-3) would be selected for core cooling; and

- EOP-9.0, Success Path HR-3, would be implemented to initiate once-through-cooling.

While reviewing these procedures, the inspectors were concerned that the licensee's safety-related pathway, once-through-cooling, was not clearly delineated by the steps in the procedures. However, based on discussion with the licensee and their operations personnel the inspectors had reasonable assurance the operator, based on their training, would enter and initiate the applicable once-through-cooling procedures. As a result, the inspectors were satisfied that once-through-cooling was documented by procedures and its radiological release was bounded by the calculation associated with the use of Atmospheric dump valves.

Based on the above assessment, the inspectors determined that no performance deficiencies or violations of regulatory requirements exist. The inspectors had no further concerns in this area. The documents that were reviewed are included in the Attachment to this report. This URI is closed.

.3 (Discussed) Confirmatory Order, EA-09-060, November 10, 2009, Failure to Provide Complete and Accurate Information

a. Inspection Scope

On May 22, 2008, the NRC completed a security baseline inspection at the Palisades Nuclear Plant. The inspection covered one or more of the key attributes of the security cornerstone of the NRC's Reactor Oversight Process. As a result of the inspection observations, the NRC Office of Investigations (OI) initiated an investigation (OI Case No. 3-2008-020). Based on the evidence developed during the inspection and investigation, the NRC identified a violation of 10 CFR 50.9 for inaccurate and incomplete information. Specifically, the licensee failed to ensure that information in corrective action documents was complete and accurate in all material respects, and the licensee failed to provide accurate information to the Commission during a telephone conversation between a licensee employee and an NRC inspector.

The results of the investigation were sent to Entergy in a letter dated July 14, 2009. This letter offered Entergy the opportunity to either participate in Alternate Dispute Resolution (ADR) mediation or to attend a Pre-decisional Enforcement Conference. On July 28, 2009, the NRC and Entergy agreed to participate in ADR mediation.

On September 15, 2009, the NRC and Entergy participated in an ADR session and, as a result, a Confirmatory Order was issued pursuant to the agreement reached during the ADR process. As part of the ADR settlement agreement, Entergy agreed to a number of organizational, procedural, and management oversight related corrective actions and enhancements at Palisades Nuclear Plant and other Entergy Fleet nuclear sites.

During the inspection conducted at Palisades Nuclear Plant on November 22, 2010, and at Entergy Headquarters on November 30, 2010, the inspector evaluated the licensee's compliance with the order by; 1) reviewing Palisades Nuclear Plant and Entergy procedures and records; 2) conducting interviews with non-supervisory personnel, supervisory personnel and managers responsible for implementing the CAP at Palisades Nuclear Plant; 3) conducting interviews with Palisades Nuclear Plant and Entergy Corporate personnel responsible for completion of the actions required by Confirmatory Order, EA-09-060; and 4) reviewing licensee procedures and records

related to the completion of the actions required by the NRC's Confirmatory Order, EA-09-060.

The inspectors conducted the following specific inspection activities:

- reviewed and evaluated Palisades Nuclear Plant safeguards log entries, CRs, and corrective action documents for the period between July 1, 2010 and November 22, 2010;
- reviewed and evaluated CRs, and corrective action documents associated with the completion of actions required by Confirmatory Order EA-09-060;
- verified Entergy, by December 10, 2009, published the corrective actions, set forth in the Confirmatory Order, to the Entergy fleet nuclear workforce;
- verified Entergy, by May 10, 2010, developed and implemented a formal process, within the current CAP, that ensures that Safeguards and Security-Related information, which would otherwise not be contained in the CAP, is processed in an auditable manner, consistent with Entergy's existing CAP;
- verified Palisades Nuclear Plant implemented the formal CAP process described above through the following onsite inspection activities: (a) reviewed CRs that required documentation of Safeguards Information (SGI) to ensure they were clearly identified as Safeguards CRs; (b) reviewed safeguards CRs to validate where SGI was required to describe the condition or corrective actions, the additional information was contained in a uniquely identified and referenced safeguards document; (c) reviewed CRs that required documentation of SGI to ensure they referenced the uniquely identified safeguards document and the uniquely identified safeguards document referenced the CR; c) evaluated the process by which the site security manager identified situations where SGI may need to be discussed for the Condition Review Group and Corrective Action Review Board to properly prioritize CRs or review CR evaluations, and that members of the Condition Review Group and Corrective Action Review Board were qualified to review SGI; d) reviewed safeguards CRs to verify the adequacy of the response to a corrective action was evaluated by safeguards qualified personnel when SGI was required to describe information in the Corrective Action; and e) reviewed safeguards CRs to validate closure reviews for the CRs were performed by safeguards qualified personnel;
- verified Entergy, by August 8, 2010, completed training on the licensee's program that ensures that Safeguards and Security-Related information, which would otherwise not be contained in the CAP, is processed in an auditable manner, consistent with Entergy's existing CAP for those personnel with Safeguards access;
- verified Entergy, by November 10, 2010, provided training to Entergy's nuclear workforce on the sensitivity and importance of providing complete and accurate information to the NRC;
- verified Entergy, by May 10, 2010, assessed its succession planning process with respect to how that process addresses unanticipated, short-term personnel losses in key positions and developed corrective actions, as appropriate;
- verified Entergy executive(s), by March 31, 2010, met with the three NRC Regional Administrators for the Regions in which Entergy owns and operates plants, to share and discuss the results of the safety culture workplace survey conducted at each Entergy nuclear plant in 2009; and

- verified Entergy, by November 16, 2010, provided a lessons-learned presentation to the Regional Utility Groups for the NRC Regions in which Entergy operates nuclear facilities, and the lessons-learned presentation addressed the events which gave rise to the Confirmatory Order and the corrective actions taken.

b. Findings

No findings were identified.

.4 (Closed) Unresolved Item 05000255/2008003-07 Backfit of Fast Transfer Scheme

As documented in Inspection Reports (IRs) 05000255/2008008 and 05000255/2008003 the inspectors identified a concern with respect to the fast transfer scheme at Palisades from the safeguards transformer to the startup transformer. In a previous correspondence, the licensee had notified the NRC of a change of commitment for modifying the transfer scheme, and that change was not challenged by the agency at that time. After further review, the NRC determined that the fast transfer scheme from the safeguards transformer to the startup transformer must be modified to comply with its description in UFSAR Section 8.6.2. The staff assessed this issue as it related to a backfit, and determined that the provisions of 10 CFR 50.109 (a)(4) were applicable.

In a letter dated June 10, 2008, from L. Lahti (ML081630565), the licensee stated that a modification to restore the fast transfer scheme would be implemented during the 2010 refueling outage. In order to track the completion of the required modification, item OTHR 05000255/2008003-07, Backfit of Fast Transfer Scheme was opened in IR 05000255/2008003. Under IMC 0612 issued on April 30, 2010 this issue would be tracked as a VIO.

During this inspection period, the inspectors verified that the licensee installed the proposed fast transfer scheme modification and observed the post modification tests had been conducted satisfactorily. As a result of the inspectors' verification of the completed fast transfer scheme modification and the results of the left and right train post modification tests, the inspectors concluded that there are no outstanding concerns with the issues involved in this backfit. This URI issue is closed.

.5 (Closed) Unresolved Item 05000255-2009005-01 Notice of Enforcement Discretion for Repair of Service Water Pump P-7C

a. On October 1, 2009, the NRC verbally granted a NOED to the licensee to not enforce TS 3.7.8 required action A.1, B.1, and B.2. The licensee followed up with a written request on October 5, 2009. On October 6, the licensee informed the inspectors that the licensee's request for the NOED contained inaccurate information related to testing performed on the replacement couplings. At the time, the inspectors could not determine if the inaccurate information resulted in a violation of NRC requirements and opened URI 05000255/2009005-01. The inspectors have now concluded that the licensee violated 10 CFR 50.9. The inspectors did not identify any other violations of NRC requirements. This URI is closed.

Introduction: The inspectors identified a Severity Level IV NCV of 10 CFR 50.9 for the licensee's failure to provide information to the NRC that was complete and accurate in all material respects. Specifically, in a letter on dated October 5, 2009, the licensee

inaccurately stated new couplings for a service water pump were independently tested prior to installation. There was not an associated ROP finding for this NCV.

Description: On September 29, 2009, the upper shaft coupling for the C service water pump, P-7C, failed. In order to complete repairs, the licensee requested a NOED. The licensee had evaluated the failed coupling and determined that the coupling failed due to improper heat treatment of the coupling. In order to ensure that the replacement couplings met hardness criteria, the licensee indicated that each replacement coupling would receive a hardness test by an independent test organization. The licensee provided this information verbally during the October 1 call, and in writing in the October 5 letter. The NRC acknowledged the licensee's actions. However, each coupling did not receive an independent hardness test. Instead, the vendor sent a sample for independent testing. This sampling strategy selected a coupling from each batch of couplings receiving heat treatment and performed hardness testing on the sample. This strategy is a common industry practice and is adequate in many cases to validate the heat treatment. However, the cause of the improper heat treatment was not known at the time of the NOED and hardness testing of the failed coupling as part of manufacture had been ineffective at identifying the improper heat treatment. Therefore, the method of hardness testing was germane to the acceptability of the NOED. In addition, no independent hardness nor batch sample testing occurred on two of the couplings.

After the licensee submitted the written request for a NOED, the inspectors learned that no independent hardness testing occurred on two of the couplings and the rest of the couplings had been tested using a sampling methodology. The inspectors discussed this condition with licensee. The licensee informed the inspectors that the vendor desired to use a sampling methodology and that the licensee agreed to this method since it was a common practice and generally equivalent to testing each coupling. After the NOED had been granted and the letter sent, the licensee informed the inspectors that that no testing had occurred on two of the couplings.

Due to potential willful aspects associated with the NOED, the inspectors provided information to the Office of Investigations for review. OI reviewed the issue to determine if licensee personnel willfully failed to provide complete and accurate information to the NRC in the NOED. OI completed the investigation, and the NRC did not substantiate, based upon the evidence, that personnel willfully failed to provide complete and accurate information to the NRC. However, information included in the Request for Enforcement Discretion dated October 5, 2009, was not complete and accurate in all material respects.

Analysis: The inspectors concluded that the licensee had reasonable opportunity to foresee and correct the inaccurate/incomplete information prior to the information being submitted to the NRC. As a result, this issue was considered a performance deficiency. Using the information provided in IMC 0612, Appendix B, "Issue Screening," the inspectors determined that traditional enforcement was warranted, because violations of 10 CFR 50.9 are considered to potentially impede or impact the regulatory process. Specifically, in order to determine the acceptability of granting discretion, the NRC needed assurance that the replacement couplings met hardness requirements. Using the information provided in the Enforcement Policy, Section 6.9, this issue was determined to be a Severity Level (SL) IV NCV, as it did not meet the definition for a Severity Level I, II, or III violation. Specifically the issue was not greater than SL IV,

because the inspectors concluded that the lack of hardness testing did not impact the NRC's conclusion since the licensee did not enter the period of enforcement discretion. The inspectors also evaluated the underlying performance deficiency under the ROP. Since the licensee did not enter the period of enforcement discretion and all the questions for more than minor in Appendix B were answered no, the inspectors concluded that there was no ROP finding and therefore no cross-cutting aspect.

Enforcement: 10 CFR 50.9 requires information provided the NRC to be complete and accurate in all material respects. Contrary to this requirement, in the Request for Enforcement Discretion letter dated October 5, 2009, the licensee stated that "new couplings are being independently tested prior to installation" even though the couplings had been installed and two couplings had not been independently tested. The information was material to the NRC's decision to grant discretion in that independent testing of the couplings provide assurance that the new couplings would not fail. The issue is of severity level IV, because the additional time provided in the NOED was not needed. The licensee documented the issue in their CAP as CR-PLP-2009-05516. Because this violation was of very low safety significance and was entered into the licensee's CAP, the violation is being treated as an NCV, consistent with Section 2.3.2 of the Enforcement Policy (NCV 05000255/2010005-07, Failure to Provide Complete and Accurate Information).

## 4OA6 Management Meetings

### .1 Exit Meeting Summary

On January 10, the inspectors presented the inspection results to Mr. T. Kirwin 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 the inservice inspection were discussed with the Site Vice-President, Mr. C. Schwartz, and other members of the licensee staff on October 21, 2010.
- The closure of URI 05000255/2008009-03 with Regulatory Affairs Manager, Ms. P. Anderson via telephone on November 22, 2010.
- The results of Occupational Dose Assessment inspection with the Site Vice President, Mr. C Schwarz, on October 12, 2010.
- The closure of VIO 05000255/2008003-07 with J. Erickson via telephone on December 16, 2010.
- On January 10, 2011, the inspector presented the results of the Selected Issue Followup Inspection of quality assurance and quality control issues to Ms. P. Anderson, Acting Director, Nuclear Safety Assurance/Licensing Manager, 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. Proprietary material received during the inspection was returned

to the licensee or was retained in accordance with NRC requirements for handling of proprietary information.

4OA7 Licensee-Identified Violations

The following violation of very low significance (Green) or Severity Level IV was identified by the licensee and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as an NCV.

- Procedure, EN-QV-111, 'Training and Certification of Inspection/Verification and Examination Personnel," Section 4.0 [4](i), requires that the Entergy corporate ANSI Level III inspector shall perform periodic (annual) surveillances of quality control inspection activities to ensure that the program is being adequately implemented and maintained. Contrary to the above, no surveillances of quality control inspection activities were performed for any Entergy site during calendar year 2008. The issue was not suitable for quantitative significance determination, so it was assessed using IMC 0609, Appendix M, so it was evaluated using the qualitative criteria listed in Table 4.1. This finding was determined to be of very low safety significance because other quality assurance program functions remained unaffected by this performance deficiency, so defense-in-depth continued to exist. This issue was entered into the licensee's CAP as CR-HQN-2009-00111.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## SUPPLEMENTAL INFORMATION

## KEY POINTS OF CONTACT

Licensee

J. Abisamra, Echelon Chief Engineer
P. Anderson, Licensing Manager
S. Beagles, Echelon Manager of Fleet Operations
J. Bergeron, Palisades Mechanical Maintenance Superintendent
D. Berkenpas, Security Manager
D. Bemis, ISI Program Owner
R. Byrd, Echelon Sr. Staff Engineer
T. Davis, Palisades / Licensing, Senior Staff Tech Specialist
J. Dent, Echelon General Manager Plant operations, Fleet Operations Support
B. Dotson, Licensing
P. Deeds, Programs Engineer
J. Erickson, Licensing Department
C. Faison, Manager, Licensing Programs
B. Ford, Echelon Sr. Manager, Nuclear Safety and Licensing
D. Hamilton, Nuclear Safety Assurance Director
J. Hager, Steam Generator Program Owner
E. Harris, Echelon, QA Manager
D. Jacobs, Echelon Sr. Vice President of Planning, Development and Oversight
B. Kemp, Design Engineering Manager
K. Kingsley, Licensing Engineer
T. Kirwin, Plant Manager
C. Main, Project Manager
D. Mannai, Manager, External Affairs Services
J. McCann, White Plains Vice President of Nuclear Safety, Emergency Preparedness and Licensing
P. Morris, Echelon Manager of Administrative Services
T. Palmisano, Echelon Vice President of Oversight
C. Plachta, Palisades QA Manager
G. Schrader, Engineering Supervisor
C. Schwartz, Site Vice President
C. Sherman, Radiation Protection Manager
T. Tankersly, Echelon Director of Oversight
E. Weinkam, Senior Manager, Licensing

Nuclear Regulatory Commission

A. Stone, Branch Chief
M. Ashley, Office of Nuclear Reactor Regulation
K. Fuller, Region IV
M. Gray, Region I
J. Geissner, Region III
N. Hilton, Office of Enforcement
D. Holody, Region I
D. Jackson, Region I
W. Jones, Region IV

D. Jones, Region III
R. Kellar, Region IV
M. Marsh, Office of General Counsel
M. McLaughlin, Region I
M. Murphy, Office of Nuclear Reactor Regulation
C. Schulten, Office of Nuclear Reactor Regulation
D. Thatcher, Office of Nuclear Reactor Regulation

## LIST OF ITEMS OPENED, CLOSED AND DISCUSSED

Opened

| | | |
|---|---|---|
| 05000255/2010005-01 | NCV | Pipe Welds Not Incorporated Into the Inservice Inspection Program (1R08.1) |
| 05000255/2010005-02 | NCV | Inadequate Examination of Head Penetration Nozzles Nos. 1 and 3 (1R08.2) |
| 05000255/2010005-03 | URI | Head Corrosion Not Evaluated (1R08.2) |
| 05000255/2010005-04 | NCV | Low Pressure Alarms During Reduced Inventory (1R13) |
| 05000255/2010005-05 | NCV | Failure to Perform Daily Crane Checks (1R22) |
| 05000255/2010005-06 | NCV | Failure to Perform Required Quality Control Inspections (Section 4OA2.1.b.1) |
| 05000255/2010005-07 | NCV | Failure to Provide Complete and Accurate Information (4OA5.5) |

Closed

| | | |
|---|---|---|
| 05000255/2010005-01 | NCV | Pipe Welds Not Incorporated Into the Inservice Inspection Program (1R08.1) |
| 05000255/2010005-02 | NCV | Inadequate Examination of Head Penetration Nozzles Nos. 1 and 3 (1R08.2) |
| 05000255/2010005-04 | NCV | Low Pressure Alarms During Reduced Inventory (1R13) |
| 05000255/2010005-05 | NCV | Failure to Perform Daily Crane Checks (1R22) |
| 05000255/2010005-06 | NCV | Failure to Perform Required Quality Control Inspections (Section 4OA2.1.b.1) |
| 05000255/2010005-07 | NCV | Failure to Provide Complete and Accurate Information (4OA5.5) |
| 05000255/2008009-03 | URI | Nonsafety Related Components Credited in Steam Generator Tube Rupture Accident Analysis (4OA5.2) |
| 05000255/2008003-07 | URI | Backfit of Fast Transfer Scheme (4OA5.4) |
| 05000255/2009005-01 | URI | Repair of Service Water Pump P-7C (4OA5.5) |

## LIST OF DOCUMENTS REVIEWED

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

1R01 Adverse Weather Protection

- CR-PLP-2010-02202, Freeze Protection around MV-CD625, T-2 Level Transmitter LT-2021 Root, is Cracking, May 31, 2010
- ONP-12, Acts of Nature, Revision 26
- SOP-23 Attachment 8 and 9, Checklist CL CWCL-1 and 2, Cold Weather Checklist, November 3, 2010

1R04 Equipment Alignment

- SOP-3, Safety Injection and Shutdown Cooling System, Revision 79

1R05 Fire Protection

- EA-APR-95-031, Evaluation of the Fire Detection System in the Component Cooling Water Pump Room, Revision 0
- EA-PSSA-00-001, Palisades Plant Post Fire Safe Shutdown Summary Report, Revision 2
- Palisades Nuclear Plant Fire Hazards Analysis, Fire Area 17 Refueling and Spent Fuel Pool Area, Revision 7
- Palisades Nuclear Plant Hazards Analysis Report, Revision 7
- Refueling and Spent Fuel Pool Area Pre Fire Plan 17, Revision 0

1R06 Flooding

- CR-PLP-2010-03022, Actions to prevent repeat submergence of underground cables not effective, July 23, 2010
- DBD-7.08, Plant Protection Against Flooding, Revision 6
- EN-DC-346, Cable Reliability Program, Revision 0
- Palisades response to Generic Letter 2007-01, Inaccessible or Underground Power Cable, May 4, 2007

1R07 Annual Heat Sink Performance

- ENO6-PN1-02, Eddy Current Inspection of VHX-1, October 14, 2010
- VHX-1 Containment Air Cooler Heat Exchanger Visual testing Checklist, October 13, 2010

1R08 Inservice Inspection Activities

- ACTS PAL-01-10, Bobbin 48 IPS, Revision 0
- ACTS PAL-02-10, Bobbin 40 IPS, Revision 0
- ACTS PAL-03-10, Bobbin 24 IPS, Revision 0
- ACTS PAL-04-10, Bobbin 24 IPS (0.590 restricted tubes), Revision 0
- ACTS PAL-05-10, 3 Coil +Point 1500 RPM, Revision 0
- ACTS PAL-06-10, 3 Coil +Point 440 RPM, Revision 0

- ACTS PAL-07-10, Mag Bias 3 Coil +Point 1500 RPM, Revision 0
- ACTS PAL-08-10, U Bend/Square Bend +Point 1200 RPM, Revision 0
- ACTS PAL-09-10, U Bend +Point 900 RPM, Revision 0
- ACTS PAL-10-10, U Bend + Point 440 RPM, Revision 0
- ACTS PAL-11-10, Mag Bias U Bend + Point 900 RPM, Revision 0
- ACTS PAL-12-10, High Frequency U Bend +Point, Revision 0
- ACTS PAL-13-10, Ghent ¾ 440 RPM, Revision 0
- AREVA Document 51-9110490-000, Palisades R020 RVCH Inspection Report, May 4, 2009
- AREVA Document 51-9131378-003, Technical Justification for Detection of Leak Path Indications in Reactor Pressure Vessel Upper Head Penetrations, July 9, 2010
- AREVA Document 51-9142276-000, Technical Justification Report for the eddy current Surface Examination of J-Groove Welds and Weld Regions, August 12, 2010
- AREVA Document 51-9147146, Palisades R021 RPVH Penetration Examination, Revision 0
- AREVA Procedure 54-ISI-604-008, Automated ultrasonic examination of Open Tube RPV Closure Head Penetrations, October 1, 2010
- CAP034719, Reactor Head Staining and Scaling, March 31, 2003
- CEP-NDE-0110, Certification of NDE Personnel, Revision 4
- CEP-NDE-0111, Certification of ultrasonic examination Personnel in Accordance with ASME Section XI Appendix VIII, Revision 3
- CEP-NDE-0423, Manual Ultrasonic Examination of Austenitic Piping Welds (ASME XI), Revision 4
- CEP-NDE-0496, Manual Ultrasonic Examination of Dissimilar Metal Welds, Revision 4
- CEP-NDE-0641, Liquid Penetrant Examination (PT) for ASME Section XI, Revision 5
- CEP-NDE-0955, Visual Examination (visual examination) of Bare-Metal Surfaces, Revision 302
- Certification Record, M. Kleinjan- Level II ultrasonic examination, September 27, 2010
- Certification Record, NDE ID 51744, April 28, 2010
- Certification Record, NDE ID 62432, September 27, 2010
- CMTR, Seamless Black Pipe, January 14, 1981
- CR-PAL-2010-00045, CV-1057 Pressurizer Spray Valve from Loop 1B, May 4, 2010
- CR-PLP-2009-01082, Containment Sump Valves Not Examined, March 16, 2009
- CR-PLP-2009-01440, Loose Part steam generator A HL, March 29, 2009
- CR-PLP-2009-01448, Loose Part steam generator A HL, March 29, 2009
- CR-PLP-2009-01657, New Damage Mechanism steam generator A, April 3, 2009
- CR-PLP-2009-01717, steam generator B Tube Crack, April 4, 2009
- CR-PLP-2009-01732, CV-1057 Boric Acid Leak, April 4, 2009
- CR-PLP-2010-02597, MO-3008 Boric Acid Lea, June 28, 2010
- CR-PLP-2010-03040, PCS Debris, July 23, 2010
- CR-PLP-2010-05103, AFW Pump Design Specification, October 15, 2010
- CR-PLP-2010-05188, Distance from Flange to Head Exceeded 4 Feet, October 17, 2010
- CR-PLP-2010-05229, ISI Drawings not Updated, October 18, 2010
- CR-PLP-2010-05359, ICI Flange Lk - Corrosion Rate Vessel Head, October 20, 2010
- CR-PLP-2010-05400, AFW Minimum Pipe Wall Calculation Error, October 21, 2010
- CR-PLP-2010-05407, Head Corrosion not Documented as Relevant, October 21, 2010
- CR-PLP-2010-2010-02537, N-50 Incore Instrument Flange Assembly, July 3, 2010
- Drawing 12447-059, AFW Phase II Modification, Revision 3
- Drawing M-260, Piping Class Sheet Class HBC, Revision 9
- Drawing VEN-M110, Cross-Tie Between Containment Spray and Letdown System, Revision A
- EM-09-03, Inservice Inspection, Revision 16
- EM-09-13, Inservice Inspection Testing Program, Revision 12
- EM-09-20, Boric Acid Corrosion Control Program, Revision 3

- EPRI-1016645, Nondestructive Evaluation: Procedure for Manual Phased Array Ultrasonic Testing (ultrasonic examination) of Dissimilar Metal Welds (DMW), September 2008
- EPRI-DMW-PA-1, Procedure for Manual Phased Array Ultrasonic Examination of Dissimilar Metal Welds, Revision 1
- ETTS No. 1, 2X9 Orthogonal Array, Revision 4
- ETTS No. 3, +Point eddy current Examination of Vent Line, Revision 0
- PDQS 1053, AREVA Procedure 54-ISI-604-608, Revision 8, October 1, 2010
- PDQS 654, PDI Generic Procedure for the Ultrasonic Examination of Dissimilar Metal Welds, March 3, 2010
- PDQS 655, Procedure for Manual Phased Array Ultrasonic Examination of Dissimilar Metal Welds, March 4, 2010
- PDQS 667, PDI Generic Procedure for the Ultrasonic Examination of Austenitic Pipe Welds, July 1, 2010
- Piping Specification M-1520, December 12, 1992
- PQR KNPP-GMP 102-311-GS-PQR, December 28, 1987
- PQR PAL-SM-1-1(1), February 7, 1978
- PQR PBNP-WP-6, January 21, 1985
- Report 10-AAF-01, Ultrasonic Thickness Examination, October 10, 2010
- Report 10-MHZ-01, Liquid Penetrant Examination, October 8, 2010
- Report 10-MHZ-01, Ultrasonic Thickness Examination, October 8, 2010
- Report 10-MHZ-02, Liquid Penetrant Examination, October 9, 2010
- Report P-98-1028, ultrasonic examination Data Sheet- ESS-6-SIS-1HP-220, April 29, 1998
- Report ultrasonic examination-10-011, ultrasonic examination Pipe Weld Examination- PCS-12-SIS-2A1-15, October 12, 2010
- Report VT-09-124, Visual Examination for Boric Acid Detection – Reactor Vessel Head, April 7, 2009
- Report VT-10-088, Visual Examination for Boric Acid Detection- Reactor Vessel Head, October 17, 2010
- steam generator Degradation Assessment for Palisades Nuclear Plant 1R21 Refueling Outage, Draft
- steam generator-SGMP-09-7, Palisades Cycle 21 Steam Generator Operational Assessment Report,
  July 20, 2009
- TR 1000975, EPRI/NMAC Boric Acid Corrosion Guidebook, Revision 1
- Welder Performance Qualification Record, Welder ID 45419, August 30, 2007
- Work Order 00180720-01, HBC-40-6 Corrosion Area on External Pipe Surface, October 10, 2010
- WPS FP-PE-B31-P1P1-GTSM-001, Groove Welds and Fillet Welds, P1-P1, GTAW/SMAW, Without PWHT, Revision 3

<u>1R11 Licensed Operator Requalification Program</u>

- Palisades Simulator Exam Scenario PL-OPS-SES-106

<u>1R12 Maintenance Effectiveness</u>

- CR-PLP-2007-03653, Radiation monitoring system placed in a(1) status, September 7, 2007
- CR-PLP-2008-05201, 480 volt Breaker Problems, December 30, 2008
- CR-PLP-2010-02461, RIA-2327 Fail light lit, June 22, 2010
- CR-PLP-2010-03392, RIA-2325 stack gas iodine/particulate monitor declared non-functional, August 13, 2010

- CR-PLP-2010-03833, RIA-1805 slowly lowering output trend, September 8, 2010
- CR-PLP-2010-03856, Power supply for RIA-1805, containment high radiation monitor, September 9, 2010
- CR-PLP-2010-3568, Annuciator EK-0123 Alarm, August 23, 2010
- CR-PLP-2010-4045, 480V AC power System Exceeded Maintenance Rule Performance Criteria, September 21, 2010
- CR-PLP-2010-6742, Pressurizer heater Breaker, December 28, 2010
- EGAD-EP-10, Maintenance Rule Scoping Document, Revision 5
- EGAD-EP-10, Palisades Maintenance Rule Scoping Document, Revision 5
- EN-DC-203, Maintenance Rule Program, Revision 1
- EN-DC-204, Maintenance Rule Scope and Basis, Revision 2
- EOP-5.0, Steam Generator Tube Rupture Recovery, Revision 15
- Radiation Monitoring System Health Reports, 2008 thru 2010

1R13 Maintenance Risk Assessments and Emergent Work Control

- CR-PLP-2010-04902, Procedure and work order deficiencies precluded continuation of safeguards transformer restoration, October 12, 2010
- CR-PLP-2010-05043, Unexpected 1-C bus overvoltage alarm, October 14, 2010
- CR-PLP-2010-05209, Incorrect Schedule Logic, October 18, 2010
- CR-PLP-2010-05516, Unplanned ONP-6.1 Loss of Service Water entry, October 23, 2010
- CRS-E-1, Containment Air Cooler Motor Maintenance, Revision 7
- FSAR Chapter 8, Electrical Systems, Revision 28
- GOP-14, Shutdown Cooling, Revision 43
- Operator Logs, October 23, 2010
- Shutdown Operating Equipment Sheets, 10/4/2010 through 10/28/2010
- SOP-30, Station Power, Revision 57
- SPS-E-28, Safeguards Transformer EX-07 Voltage Settings, Revision 1
- WI-CRS-E-01, Containment Air Cooler Fan Replacement, Revision 3
- WI-MSM-M-29, Installation and Removal of Primary Coolant System Vacuum Refill Equipment, Revision 2

1R15 Operability Determinations

- CR-PLP-2010-04584, Governor and pump end bearing clearances out of tolerance, October 7, 2010
- CR-PLP-2010-04631, Wear and axial crack found under carbon seal rings, October 8, 2010
- CR-PLP-2010-05251, Containment Spray Valve Closure Time Outside Acceptance Range, October 18, 2010
- CR-PLP-2010-05740, Two of four sensor channels did not actuate AFAS, October 27, 2010
- CR-PLP-2010-05858, Crack found in K-6B turbocharger support weld, October 31, 2010
- CR-PLP-2010-05859, Cracks found in K-6A turbocharger support welds, October 31, 2010
- CR-PLP-2010-06134, CTS and AFW Control Valve Operability Evaluation, November 16, 2010
- DBD-1.03, Auxiliary Feedwater System Design Basis Document, Revision 7
- DBD-1.09, Main Steam System Design Basis Document, Revision 2
- DBD-2.03, Containment Spray System Design Basis Document, Revision 7
- EN-MA-125 Troubleshooting plan for Auxiliary Feedwater Actuation System
- JLG00150, Sh 1, Logic Diagram for Auxiliary Feedwater Actuation System
- Letter, ALCO Engine to Consumers Power, April 7, 1969

- SOP-12, Feedwater System, Revision 58
- Vendor Manual J447, Sh 45, Auxiliary Feedwater Actuation System

1R18 Plant Modifications

- EC-18181, Replace/Test DC Breakers 72-119 thru 72-136
- EC-18182, Provide Temporary Power for D11-2 Outage
- EN-LI-100, Process Applicability Determination, Revision 9
- PAD-10-0509, Temporary Modification to Plug Incore, Revision 0
- PAD-10-0527, Splice Incore Cables, Revision 1
- RFL-R-15, Instrument Nozzle (ICI) Flange Instrumentation, Revision 5
- TMOD-25478, Installation of Hydrostatic Plug at Incore Location INCE-72G13 (Scheme IR24) for Cycle 21
- TMOD-25478, Plug Incore Location
- TMOD-EC25581, Splice Core Exit Thermocouple,

1R19 Post-Maintenance Testing

- C&D Technologies WO 95946, Capacity Discharge Test Reports, July 7 and July 22, 2010
- CR-PLP-2010-04698, Station battery service and performance tests need to be revised, October 9, 2010
- CR-PLP-2010-05019, Sump Cleaning Inadequate, October 14, 2010
- DBD 3.04, 2400V AC System, Revision 6
- DBD 3.05, 480V AC System, Revision 5
- DBD 4.01, Station Batteries, Revision 7
- EC 24216, Acceptance criteria description as part of EC 5000122470 and EC 15460
- EC 5000122470, Fast Transfer Relay
- FSAR Chapter 8, Electrical Systems, Revision 28
- IEEE 450-1995, Recommended Practice for Maintenance, Testing, and Replacement of Vented Lead-Acid Batteries for Stationary Applications
- RT-92, Inspection of Containment Sump Envelope, Revision 4
- SPS-E-1, 2400 Volt and 4160 Volt Allis Chalmers and Siemens Vacuum Circuit Breaker Auxiliary Switch Adjustments, Revision 31
- WO 154683, 152-115 Replace MOC switch bayonets with stronger bayonets
- WO 213784, 152-115 Preventative Maintenance
- WO 51632229-14, Left Train Fast Transfer Functional Test
- WO 51637262, ED-01, Replace Station Battery #1

1R20 Outage Activities

- Administrative Procedure 10.41, Site Procedure and Policy Process, Revision 45
- ANSI/ANS-19.6.1-2005 (Ref 4 in TS) November 29, 2005
- Calculation E-PAL-89-040-1, Evaluate capacity of RV-3164
- Calibration sheet for vacuum pressure gauge, ID 007607
- CR-PLP-2010-02510, Boric acid on MV-CVC-2225, June 24, 2010
- CR-PLP-2010-04351, Oil on Primary Coolant Pump B, October 4, 2010
- CR-PLP-2010-04359, Boric acid deposits on HPSI hot leg instrument line
- CR-PLP-2010-04360, Boric acid deposits on hot leg pressure indicator, October 4, 2010
- CR-PLP-2010-04565, Two of the side operators were unable to turnover their sides, October 7, 2010
- CR-PLP-2010-05185, Several fuel inspection personnel violated minimum days off requirements, October 17, 2010

- DBD 2.01, Low Pressure Safety Injection System, Revision 10
- EC 15767, Sudden Pressure Relays Revise Trip Logic to 2/3 for all Eight Large Power Transformers
- EM-04-24, Palisades Critical Position and Critical Approach, Revision 8
- EN-IS-102, Confined Space Program, Revision 8
- EN-OM-123, Fatigue Management Program, Revision 3
- EN-OP-102, Protective and Caution Tagging, Revision 13
- EN-OU-108, Shutdown Safety Management Program, Revision 1
- ESS-M-43, Containment Sump Envelope Access Control, Revision 0
- GOP-11, Refueling Operations and Fuel Handling, Revision 44
- GOP-14, Shutdown Cooling Operations, Revision 43
- GOP-3, Mode 3 >525 degrees to Mode 2, Revision 30
- GOP-8, Power reduction and Plant Shutdown to Mode 2 or Mode 3 >= 525, Revision 26
- GOP-9, Mode 3 >= 525F to Mode 4 or Mode 5, Revision 30
- Letter from Consumers Power to NRC regarding GL 88-17 commitments, January 3, 1989
- ONP-17, Loss of Shutdown Cooling, Revision 38
- Palisades Cycle 22 Reactor Core Plan
- Palisades EOOS Review for 1R21 schedule for GOP-14 compliance
- Palisades spent fuel pool maps, October 25, 2010
- RFL-V-10, Installation of Spent Fuel Pool Divider Plate, Revision 2
- RFL-V-7, Fuel Movement, Revision 9
- RFL-V-9, Core Mapping System Setup and Operation, Revision 1
- RT-191, Startup Physics Testing Program, Revision 8
- RT-92, Inspection of Containment Sump Envelope, Revision 4
- SOP-1B, Primary Coolant System-Cooldown, Revision 11
- SOP-1C, Primary Coolant System-Heatup, Revision 10
- SOP-27, Fuel Pool System, Revision 58
- SOP-6, Reactor Control System, Revision 30
- Tagout PCS-009-Pressurizer Manway Removal
- Tagout PCS-Valve-MV-PC1134, Prevent Inadvertent PCS Dilution
- WI-MSM-M-29, Installation and Removal of Primary Coolant System Vacuum Fill Equipment, Revision 2
- WI-PCS-M-06, NSSS Walkdown, Revision 2

<u>1R22 Surveillance Testing</u>

- FHS-M-24, Movement of Heavy in Containment Building Area, rev. 32
- CR-PLP-2008-1097, L-3 Observations, March 6, 2008
- CR-PLP-2010-06153, Missed surveillance on remote shutdown systems, November 17, 2010
- CR-PLP-2010-5350, L-1 Issues, October 20, 2010
- CR-PLP-2010-5364, Polar Crane Daily Inspection, October 20, 2010
- EN-MA-119, Material Handling Program, Revision 9
- EN-MA-119, Material Handling Program, Revision 9
- QO-14, Inservice Test Procedure, Service Water Pumps, Revision 33
- RO-145, Comprehensive Test Procedure Auxiliary Feedwater Pumps P-8A, P-8B, and P-8C, Revision 9
- RO-22, Control Rod Drop Times, Revision 20
- RO-32-66, LLRT-Local Leak rate Test Procedure for Penetration MZ-66, Revision 0
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- FSEM-ADM-50.5-50.9 COMPL, Completeness and Accuracy of Information and Deliberate Misconduct Training – Background Materials, Revision 2
- FSEM-ADM-50.5-50.9 COMPL, Completeness and Accuracy of Information and Deliberate Misconduct Training Quiz, Revision 2
- Inside Entergy Publication, November 18, 2009
- NRC Region III letter, Relaxing of Schedule for Implementing Requirements for Confirmatory Order EA 09-060, October 18, 2010
- People Soft Employee Data Report, September 22, 2010
- Plateau Training Completion Report, FSEM and FCBT 50.5 – 50.9 Compliance Review Training, October 21, 2010
- PLP0247-07-0004.01R1, Thermal Hydraulic MAAP Calculations, Revision 1
- QS-2010-RBS-026, QA Surveillance Report for Review of NRC Order
- Regional Utility Group I Meeting attendance Sheet, October 12, 2010
- Regional Utility Group III Meeting attendance Sheet, October 18, 2010
- Regional Utility Group IV Meeting attendance Sheet, November 16, 2010
- Security Event Reports, Condition reports and Corrective Action Documents, July 1, 2010 – November 22, 2010
- Snapshot Self-assessment of the Entergy Nuclear Succession Planning Process, March 24, 2010
- WO 51632229-14, Post Modification Test for Left Train Fast Transfer Functional, October 29, 2010
- WO 51632232-06, Post Modification Test for Right Train Fast Transfer Functional, October 26, 2010

## LIST OF ACRONYMS USED

| | |
|---|---|
| ADAMS | Agencywide Document Access Management System |
| ADR | Alternate Dispute Resolution |
| ALARA | As-Low-As-Is-Reasonably-Achievable |
| ASME | American Society of Mechanical Engineers |
| CAP | Corrective Action Program |
| CR | Condition Report |
| DRN | Document Revision Notice |
| DRP | Division of Reactor Projects |
| EPRI | Electric Power Research Institute |
| IMC | Inspection Manual Chapter |
| IP | Inspection Procedure |
| MSPI | Mitigating System Performance Index |
| NCV | Non-Cited Violation |
| NEI | Nuclear Energy Institute |
| NOED | Notice of Enforcement Discretion |
| NRC | U.S. Nuclear Regulatory Commission |
| NRR | Nuclear Reactor Regulation |
| OI | Office of Investigations |
| OWA | Operator Workaround |
| PARS | Publicly Available Records System |
| PCS | Primary Coolant system |
| PI | Performance Indicator |
| QA | Quality Assurance |
| QC | Quality Control |
| QAPM | Quality Assurance Program Manual |
| RFO | Refueling Outage |
| RP | Radiation Protection |
| RWP | Radiation Work Permit |
| SDP | Significance Determination Process |
| SGI | Safeguards Information |
| SGTR | Steam Generator Tube Rupture |
| SL | Severity Level |
| SRO | Senior Reactor Operator |
| TI | Temporary Instruction |
| TS | Technical Specification |
| UFSAR | Updated Final Safety Analysis Report |
| URI | Unresolved Item |
| VHX-1 | Containment Ventilation System 1 |
| WO | Work Order |

U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office at the Palisades Nuclear Plant. In addition, if you disagree with the cross-cutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region III, and the NRC Resident Inspector at the Palisades Nuclear Plant.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, 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

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Letter to T. Kirwin from J. Giessner dated February 8, 2011.

SUBJECT: PALISADES NUCLEAR PLANT INTEGRATED INSPECTION REPORT 05000255/2010005 AND OFFICE OF INVESTIGATIONS REPORT NO. 3-2010-012

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