



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

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

November 4, 2009

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

**SUBJECT: PALISADES NUCLEAR PLANT INTEGRATED INSPECTION
REPORT 05000255/2009004**

Dear Mr. Schwarz:

On September 30, 2009, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Palisades Nuclear Plant. The enclosed inspection report documents the inspection results, which were discussed on October 8, 2009, with Mr. T. Kirwin and other members of your staff.

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

This report documents four NRC-identified findings and two self-revealed findings of very low safety significance (Green). Five of the findings were determined to involve violations of NRC requirements. However, because of their very low safety significance, and because the issues were entered into your corrective action program, the NRC is treating the issues as Non-Cited Violations (NCV) in accordance with Section VI.A.1 of the NRC Enforcement Policy.

If you contest the subject or severity of a NCV you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 2443 Warrenville Road, Suite 210, Lisle, IL 60532-4352; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the Resident Inspector Office at the Palisades Nuclear Plant. In addition, if you disagree with the characterization of 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. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

C. Schwarz

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

Sincerely,

/RA/

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

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

Enclosure: Inspection Report 05000255/2009004
w/Attachment: Supplemental Information

cc w/encl: Distribution via ListServ

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-255

License No: DPR-20

Report No: 05000255/2009004

Licensee: Entergy Nuclear Operations, Inc.

Facility: Palisades Nuclear Plant

Location: Covert, MI

Dates: July 1, 2009, to September 30, 2009

Inspectors: J. Ellegood, Senior Resident Inspector
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Branch 4
Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

IR 05000255/2009004; 07/01/2009 – 09/30/2009; Palisades Power Plant; Integrated Inspection Report; Post-Maintenance Testing, Access Control to Radiologically Significant Areas, As-Low-As-Is-reasonably-Achievable (ALARA) Planning and Controls, Identification and Resolution of Problems

The inspection was conducted by resident and regional inspectors. The report covers a 3-month period of resident inspection. Six green findings, five of which have an associated non cited violation (NCV), were identified. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609 "Significance Determination Process" (SDP). Cross-cutting aspects were determined using IMC 0305, "Operating Reactor Assessment Program." 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 July 2006.

A. NRC-Identified and Self-Revealed Findings

Cornerstone: Initiating Events

- Green. A finding of very low safety significance without an associated violation was identified by the inspectors for the licensee's operation of the moisture separator reheater (MSR) system outside of its design such that significant vibration occurred in the drain tank T-4B drain line. The licensee entered this issue into its corrective action program as condition report CR-PLP-2008-4020, evaluated vibration of the drain line vibration, and performed repairs and modifications that eliminated the excessive vibratory motion in the drain line. No violation of NRC requirements occurred.

The finding was determined to be more than minor because the finding was associated with the Initiating Events cornerstone attribute of equipment performance and adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The finding was evaluated using IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," Table 4a for the Initiating Events cornerstone. Based on a "No" answer to all the questions in the Initiating Events cornerstone column of Table 4a, the finding was determined to be of very low safety significance (Green) because the finding does not affect mitigation equipment. This finding has a cross-cutting aspect in the area of problem identification and resolution, corrective action program, because the licensee failed to ensure that issues potentially impacting nuclear safety are promptly identified, fully evaluated, and that actions are taken to address safety issues in a timely manner, commensurate with their significance. (P.1(c)) (4OA2)

- Green. The inspectors identified a finding of very low safety significance (Green) and an associated NCV of Technical Specifications (TS) 5.4.1, Procedures, for the failure to implement procedures to properly align the positioner feedback arm for the shutdown cooling (SDC) flow control valve CV-3006. As a result, the valve failed shut twice during the most recent refueling outage. Each occurrence caused a temperature excursion in the SDC system and a reduction in SDC flow. The licensee placed a more robust retaining clip on the feedback arm and scheduled work during the next outage to realign

the arm. The licensee also entered the issue into their corrective action program as CR-PLP-2009-01763.

The issue was more than minor per IMC 0612 Appendix B as it affected the Equipment Performance attribute of the Initiating Events cornerstone, whose objective is to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the failure of CV-3006 due to the misalignment caused temperature excursions in the SDC system and reduced SDC flow below TS required values. The issue screened as Green in IMC 0609 Appendix G, Shutdown Operations Significance Determination Process, based on the remaining mitigation factors and the determination that the issue did not represent a "loss of control." The inspectors determined that the finding had an associated cross-cutting aspect in the area of Problem Identification and Resolution under the Corrective Action Program Component because the failure recurred. Specifically, the licensee failed to take appropriate corrective actions to address safety issues. (P.1(d)) (4OA2)

Cornerstone: Mitigating Systems

- Green. The inspectors identified an NCV of TS 5.4.1 for failure to implement and maintain procedural guidance for filling the High Pressure Safety Injection (HPSI) lines. Specifically, the licensee used procedure ESSO-01 to fill the Emergency Core Cooling System (ECCS) piping following a system outage ending in September 2007. The procedure failed to ensure that the sub-cooling line to the HPSI suction was filled and the remaining void created reasonable doubt regarding the operability of the ECCS system. The licensee located the void on July 1, 2009, as part of actions related to Generic Letter 2008, declared the train inoperable and successfully eliminated the void on July 2, 2009. Additionally, the issue was placed in the corrective action program as CR PLP-2009-3377

The inspectors determined the issue was more than minor per IMC 0612 Appendix B because it affected the Configuration Control attribute of the Mitigating Systems cornerstone in that it affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events. Specifically the void impacted the reliability of a high pressure safety injection pump. The finding screened as Green, or very low safety significance, in IMC 0609 Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," using the Phase 1 worksheets because the finding did not result in loss of operability. This finding has a cross-cutting aspect in the area of problem identification and resolution, operating experience, because the licensee failed to implement operating experience through changes to station processes (P2(b)). (1R19)

- Green. A finding of very low safety significance (Green) and associated NCV of TS 5.4.1, Procedures, was self-revealed when operators incorrectly implemented a procedure that connected a temporary pump to a containment spray header while attempting to fill the header. Specifically, the suction and discharge connections were swapped so that when the pump was turned on, water was pumped out of the header instead of into the header, reducing level below the TS required minimum value. The licensee corrected the connections and refilled the header to an acceptable level. Additionally, the issue was placed in the corrective action program as CR-PLP-2009-04080.

The inspectors determined the issue was more than minor per IMC 0612 Appendix B because it affected the Configuration Control attribute of the Mitigating Systems cornerstone in that it affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events. Specifically, the improper connection of the pump lowered header level below the TS allowed value which resulted in an inadvertent TS action statement entry. The finding screened as Green, or very low safety significance, in IMC 0609 Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," using the Phase 1 worksheets based on answering 'no' to all questions under the Mitigating Systems cornerstone in Table 4a. The finding had an associated cross-cutting aspect in the Work Practices component of the Human Performance cross-cutting area; namely, the licensee failed to appropriately communicate and use proper human error prevention techniques. (H.4(a)) (4OA2)

Cornerstone: Occupational Radiation Safety

- Green. A self-revealed finding of very low safety-significance and an associated NCV of TS 5.7 were identified for workers entering a high radiation area (HRA) without an adequate awareness of radiological conditions and while working under a Radiation Work Permit (RWP) that did not allow entry into a high radiation area. The electronic dosimetry worn by the workers alarmed when they entered an area of elevated dose rates. Corrective actions taken by the licensee included denial of their access into the radiologically controlled area. The issue was entered in the licensee's corrective action program as CR-PLP-2009-01884.

The issue was more than minor because it is similar to Example 6.h in IMC 0612 Appendix E "Examples of Minor Issues" for an issue that is more than minor. The inspectors determined that the violation affected the Occupational Radiation Safety Cornerstone. The inspectors determined that this finding did not involve: (1) an ALARA finding; (2) an overexposure; (3) a substantial potential for overexposure; or (4) an impaired ability to assess doses. Consequently, the inspectors concluded that the SDP assessment for this finding was of very low safety-significance (Green). Additionally, this finding has a cross-cutting aspect in the area of human performance, work practices component, because the supervisor that performed the pre-job brief for the job failed to provide clear guidance on the requirements for entry into a high radiation area. (H.4(b)). (2OS1.4)

- Green. The inspectors identified a finding of very low safety significance and associated NCV of TS 5.4.1 for failure to implement procedures required to conduct timely reviews of job progress and implement actions necessary to reduce workers' exposure. Specifically, the inspectors identified that work in progress reviews for jobs greater than 5 rem were not completed and therefore the licensee did not implement additional actions necessary to reduce workers' exposure. The issue was entered in the licensee's corrective action program as CR-PLP-2009-004074.

The finding is more than minor because it impacted the Program and Process attribute of the Occupational Radiation Safety Cornerstone and affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation, in that the licensee neither fully evaluated the cause for additional exposure nor prescribed exposure mitigation actions. Therefore, additional exposure was received by the plant staff. The inspectors determined that this finding did not involve: (1) an ALARA finding;

(2) an overexposure; (3) a substantial potential for overexposure; or (4) an impaired ability to assess doses. Consequently, the inspectors concluded that the SDP assessment for this finding was of very low safety-significance (Green). Additionally, this finding has a crosscutting aspect in the area of human performance, work practices component, because the ALARA supervisor did not provide adequate oversight of the ALARA work activities. (H.4(c)) (2OS2.2)

B. Licensee-Identified Violations

No violations of significance were identified.

REPORT DETAILS

Summary of Plant Status

The plant began the inspection period at 100 percent power and remained at of near 100 percent power throughout the inspection period.

1. REACTOR SAFETY

Cornerstone: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

a. Inspection Scope

Since persistent thunderstorm activity was forecast in the vicinity of the facility during the week of August 17, 2009, the inspectors reviewed the licensee's overall preparations/protection for the expected weather conditions. The inspectors reviewed licensee procedures and preventative maintenance records dealing with the lightning protection systems on site. The inspectors also walked-down rooftop areas and transformers in the protected area to inspect installed lightning protection equipment. 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 Inspection Procedure (IP) 71111.01-05.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

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

- West safeguards pumps and piping after HPSI subcooling line void flush
- Motor driven (P-9A) and diesel fire (P-9B) pumps during scheduled maintenance on the diesel driven fire pump (P-41)
- 1-2 emergency diesel generator (EDG) during 1-1 EDG maintenance

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures,

system diagrams, Updated Final Safety Analysis Report (UFSAR), Technical Specification (TS) requirements, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also walked down accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program with the appropriate significance characterization. Documents reviewed are listed in the Attachment.

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

b. Findings

No findings of significance were identified.

.2 Semi-Annual Complete System Walkdown

a. Inspection Scope

On September 23, 2009, the inspectors performed a complete system alignment inspection of the Component Cooling Water System to verify the functional capability of the system. This system was selected because it was considered both safety significant and risk significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment line ups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. A review of a sample of past and outstanding work orders was performed to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the corrective action program database to ensure that system equipment alignment problems were being identified and appropriately resolved. Documents reviewed are listed in the Attachment.

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

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Routine Resident Inspector Tours (71111.05Q)

a. Inspection Scope

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

- Post indicating valves and fire houses
- East engineered safeguards room
- D-Safeguards bus
- Auxiliary building 611'

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 corrective action program. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

.2 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On July 8 the inspectors observed fire brigade activation during an unannounced fire drill. Based on this observation, the inspectors evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that the licensee staff identified deficiencies; openly discussed them in a self-critical manner at the drill debrief, and took appropriate corrective actions. Specific attributes evaluated were: (1) proper wearing of turnout gear and self-contained breathing apparatus; (2) proper use and layout of fire hoses; (3) employment of appropriate fire fighting techniques; (4) sufficient firefighting

equipment brought to the scene; (5) effectiveness of fire brigade leader communications, command, and control; (6) search for victims and propagation of the fire into other plant areas; (7) smoke removal operations; (8) utilization of pre-planned strategies; (9) adherence to the pre-planned drill scenario; and (10) drill objectives.

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

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Regualification Program (71111.11)

a. Inspection Scope

On September 10, 2009, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification training to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

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

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

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

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

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

- Containment spray system

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

- implementing appropriate work practices;
- identifying and addressing common cause failures;
- scoping of systems in accordance with 10 CFR 50.65(b) of the maintenance rule;
- characterizing system reliability issues for performance;
- charging unavailability for performance;
- trending key parameters for condition monitoring;
- ensuring 10 CFR 50.65(a)(1) or (a)(2) classification or re-classification; and
- verifying appropriate performance criteria for structures, systems, and components/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 corrective action program with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one quarterly maintenance effectiveness sample as defined in IP 71111.12-05.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

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

- Flush of a void in HPSI subcooling piping
- Steam generator level transient due to faulty level circuit
- Service water pump A and high pressure air outages

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

walked down portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met.

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

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- Pressurizer heaters
- Primary coolant pump D seals

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 also reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Documents reviewed are listed in the Attachment to this report.

This operability inspection constituted two samples as defined in IP 71111.15-05.

b. Findings

No findings of significance were identified.

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:

- Void in HPSI subcooling piping
- Limit switch adjustment on 1-2 EDG day tank
- Component cooling water pump C drain valve replacement

- Auxiliary feed water A pump flow positioner replacement and check valve repair
- D-Safeguards feeder breaker MOC switch replacement

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 corrective action program 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 samples as defined in IP 71111.19-05.

b. Findings

Introduction: The inspectors identified a NCV of TS 5.4.1 for failure to implement and maintain procedural guidance for filling the HPSI lines. Specifically, the licensee used procedure ESSO-01 to fill the ECCS piping following a system outage ending in September 2007. The procedure failed to ensure that the sub-cooling line to the HPSI suction was filled. The licensee located the void on July 1, 2009 as part of actions related to Generic Letter (GL) 2008-01, Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and Containment Spray Systems.

Description: On June 29, 2009 the licensee took void measurements on the HPSI subcooling lines in response to GL 2008-01. On June 30, 2009 the system engineer evaluated the data and on July 1 determined the void exceeded the acceptance criteria of .22 cubic feet. When informed of the void at 0730 on July 1, the Shift Manager declared one train of ECCS inoperable and entered the appropriate Limiting Condition for Operation. The licensee prepared a procedure to remove the gas void and used the procedure on July 2. Following procedure performance, the licensee measured the line for voiding and confirmed no void existed. The licensee began to routinely monitor the line for voids and has confirmed that no significant accumulation has occurred. The licensee's cause analysis indicated that the void existed since an outage in September 2007. Work was being done on the ECCS lines and an adequate fill and vent of that portion of the system was not done following maintenance.

Analysis: The inspectors determined that the failure to properly fill and vent the ECCS line was a performance deficiency and a finding warranting a significance evaluation. The inspectors concluded the finding was more than minor because the finding was associated with the mitigating system attribute of equipment reliability and it affected the

cornerstone objective to ensure the availability, reliability and capability of mitigating systems. Specifically, the presence of the void created reasonable doubt about the operability of the ECCS system such that the licensee declared the system inoperable. In order to assess the system condition, the licensee performed an extensive analysis of the void and its affect on the ECCS system. The analysis concluded that the void would not have prevented the ECCS system from performing its safety function. The inspectors in region III and at nuclear reactor regulation (NRR) at headquarters concluded that the finding was not of more than very low safety significance in accordance with IMC 0609 table 4a because it did not result in a loss of operability. Therefore, the inspectors determined the finding to be of very low safety significance (Green). This finding has a cross-cutting aspect in the area of problem identification and resolution, operating experience, because the licensee failed to implement operating experience through changes to station processes (P2(b)). The licensee identified in their apparent cause evaluation numerous examples of operating experience related to voids and that the site reviews lacked rigor in application of the specific operating experience.

Enforcement: Technical Specification 5.4.1, "Procedures" states, in part, that written procedures shall be established, implemented, and maintained covering applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33 states, in part, that maintenance that can affect the performance of safety-related equipment should be properly pre-planned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances. Contrary to this, in September of 2007, the licensee failed to have adequate procedures, appropriate to the circumstances, established for work on the ECCS injection lines to ensure the lines were free from gas voids prior to restoring the system to operation. As a result, gas remained in the HPSI sub-cooling line from on September 2007 until July 2, 2009. Because this violation is of very low safety significance and it is entered into the licensee's corrective action program as CR PLP-2009-3377, this violation is being treated as an NCV, consistent with the NRC Enforcement Policy: NCV 05000255/2009004-01, Gas Void in HPSI Suction Line.

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:

- Monthly testing of 1-1 EDG
- QO-1, Quarterly testing of the safety injection system
- In-service test of service water pump P-7C
- 1-1 EDG load reject testing
- Primary coolant system leak rate

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

- did preconditioning occur;
- were the effects of the testing adequately addressed by control room personnel or engineers prior to the commencement of the testing;
- were acceptance criteria clearly stated, demonstrated operational readiness, and consistent with the system design basis;
- plant equipment calibration was correct, accurate, and properly documented;
- as-left setpoints were within required ranges; and the calibration frequency were in accordance with TSs, the UFSAR, procedures, and applicable commitments;
- measuring and test equipment calibration was current;
- test equipment was used within the required range and accuracy; applicable prerequisites described in the test procedures were satisfied;
- test frequencies met TS requirements to demonstrate operability and reliability; tests were performed in accordance with the test procedures and other applicable procedures; jumpers and lifted leads were controlled and restored where used;
- test data and results were accurate, complete, within limits, and valid;
- test equipment was removed after testing;
- where applicable for inservice testing activities, testing was performed in accordance with the applicable version of Section XI, American Society of Mechanical Engineers code, and reference values were consistent with the system design basis;
- where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure;
- where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished;
- prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test;
- equipment was returned to a position or status required to support the performance of its safety functions; and
- all problems identified during the testing were appropriately documented and dispositioned in the corrective action program.

Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on September 29, 2009, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the Emergency Operations Facility, Technical Support Center and Simulator Control Room to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the corrective action program. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

.1 Plant Walkdowns and Radiation Work Permit Reviews

a. Inspection Scope

The inspectors assessed the adequacy of the licensee's internal dose assessment process for internal exposures in excess of 50 millirem committed effective dose equivalent. There were no internal exposures greater than 50 millirem committed effective dose equivalent.

This inspection constituted one sample as defined in IP 71121.01-5.

b. Findings

No findings of significance were identified.

.2 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed a sample of the licensee's self-assessments, audits, Licensee Event Reports, and Special Reports related to the access control program to verify that identified problems were entered into the corrective action program for resolution.

This inspection constituted one sample as defined in IP 71121.01-5.

The inspectors reviewed corrective action reports related to access controls and any high radiation area radiological incidents (issues that did not count as performance indicator (PI) occurrences identified by the licensee in high radiation areas less than 1R/hr). Staff members were interviewed and corrective action documents were reviewed to verify that follow-up activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk based on the following:

- initial problem identification, characterization, and tracking;
- disposition of operability/reportability issues;
- evaluation of safety significance/risk and priority for resolution;
- identification of repetitive problems;
- identification of contributing causes;
- identification and implementation of effective corrective actions;
- resolution of NCVs tracked in the corrective action system; and
- implementation/consideration of risk significant operational experience feedback.

This inspection constituted one sample as defined in IP 71121.01-5.

The inspectors evaluated the licensee's process for problem identification, characterization, and prioritization and verified that problems were entered into the corrective action program and resolved. For repetitive deficiencies and/or significant individual deficiencies in problem identification and resolution, the inspectors verified that the licensee's self-assessment activities were capable of identifying and addressing these deficiencies.

This inspection constituted one sample as defined in IP 71121.01-5.

The inspectors reviewed licensee documentation packages for all PI events occurring since the last inspection to determine if any of these PI events involved dose rates in excess of 25 R/hr at 30 centimeters or in excess of 500 R/hr at 1 meter. Barriers were evaluated for failure and to determine if there were any barriers left to prevent personnel access. Unintended exposures exceeding 100 millirem total effective dose equivalent (or 5 rem shallow dose equivalent or 1.5 rem lens dose equivalent) were evaluated to determine if there were any regulatory overexposures or if there was a substantial potential for an overexposure.

This inspection constituted one sample as defined in IP 71121.01-5.

b. Findings

No findings of significance were identified.

.3 High Risk Significant, High Dose Rate, High Radiation Area and Very High Radiation Area Controls

a. Inspection Scope

The inspectors held discussions with the Radiation Protection Manager concerning high dose rate, high radiation area and very high radiation area controls and procedures, including procedural changes that had occurred since the last inspection, in order to assess whether any procedure modifications substantially reduced the effectiveness and level of worker protection.

This inspection constituted one sample as defined in IP 71121.01-5.

The inspectors discussed with radiation protection supervisors the controls that were in place for special areas of the plant that had the potential to become very high radiation areas during certain plant operations. The inspectors assessed if plant operations required communication beforehand with the radiation protection group, so as to allow corresponding timely actions to properly post and control the radiation hazards.

This inspection constituted one sample as defined in IP 71121.01-5.

b. Findings

No findings of significance were identified.

.4 Radiation Worker Performance

a. Inspection Scope

The inspectors reviewed radiological problem reports for which the cause of the event was due to radiation worker errors to determine if there was an observable pattern traceable to a similar cause and to determine if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems. Problems or issues with planned or completed corrective actions were discussed with the Radiation Protection Manager.

This inspection constituted one sample as defined in IP 71121.01-5.

b. Findings

Introduction: A self-revealed finding of very low safety-significance and associated NCV of TS 5.7 were identified for entering a HRA without adequate awareness of radiological conditions and while working under an RWP that did not allow entry into an HRA.

Description: On April 8, 2009, two radiation workers received electronic dosimeter dose rate alarms while working in the west safeguards room.

A pre-job brief was conducted by the job supervisor prior to the workers starting the job. The supervisor instructed the two workers to place spring spacers on valve CV-3059. The supervisor indicated that he thought the proper RWP was RWP 460 and expected the workers to confirm the appropriate RWP with radiation protection staff. The two workers did not check in with the RP staff before entering the radiologically controlled area nor did they confirm the proper RWP for the work activity/location. Consequently, the RP staff did not brief the workers of the radiological conditions of the work area before entry. The workers passed through two HRA postings prior to reaching valve CV-3059. Within a short period of time of entering the west safeguards room, both workers received electronic dosimeter (ED) dose rate alarms left the area and reported the event to the RP staff. The ED dose rate alarm setpoint for the two workers was established at 15 millirem/hour and the ED recorded a maximum dose rate of 20.3 millirem/hour. The inspectors determined that dose rates in other accessible locations of the west safeguards exceeded 100 millirem/hour.

Technical Specifications 5.7 "High Radiation Area" requires that access to and activities in HRAs shall be controlled by means of an RWP. Additionally, entry into such areas shall be made only after dose rates in the area have been determined and entry personnel are knowledgeable of them.

Analysis: Entering a high radiation area without being aware of the radiological conditions and without being on a RWP that allowed HRA access as required by the licensee's TS 5.7 represents a performance deficiency as defined in IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening." The inspectors determined that the issue was more than minor because it is similar to Example 6.h in IMC 0612 Appendix E "Examples of Minor Issues" for an issue that is more than minor. The inspectors determined that the violation affected the Occupational Radiation Safety Cornerstone.

Since the finding involved a radiological access control problem, the inspectors utilized IMC 0609, Appendix C, "Occupational Radiation Safety SDP," to assess its significance. The inspectors determined that this finding did not involve: (1) an ALARA finding; (2) an overexposure; (3) a substantial potential for overexposure; or (4) an impaired ability to assess doses. Consequently, the inspectors concluded that the SDP assessment for this finding was of very low safety-significance (Green). Additionally, this finding has a cross-cutting aspect in the area of human performance because the job supervisor who performed the pre-job brief failed to provide clear guidance on entering into a high radiation area. (H.4(b)).

Enforcement: Technical Specification 5.7 requires that personnel be aware of the radiological conditions of high radiation areas before entry and that entries be controlled using an RWP. Contrary to this requirement, on April 8, 2009 personnel entered a HRA in the west safeguards area without the required knowledge of the radiological conditions and without signing onto an RWP that allowed access to an HRA. Corrective actions taken by the licensee included coaching of the involved workers and denial of their access into the radiological controlled area. The licensee also performed additional communications to select plant personnel, through stand downs, to reinforce that workers ensure they read and adhere to all posted signs and work on the correct RWP. Because this finding is of very low safety-significance and has been entered into the licensee's corrective action program as CR-PLP-2009-01884, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy:

NCV 05000255/2009004-02, Entering a High Radiation Area without an adequate awareness of radiological conditions.

.5 Radiation Protection Technician Proficiency

a. Inspection Scope

The inspectors reviewed radiological problem reports for which the cause of the event was radiation protection technician error to determine if there was an observable pattern traceable to a similar cause and to determine if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems.

This inspection constituted one sample as defined in IP 71121.01-5.

b. Findings

No findings of significance were identified.

2OS2 As-Low-As-Is-Reasonably-Achievable Planning and Controls (71121.02)

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed documents to determine if there were site-specific trends in collective exposures and source-term measurements.

This inspection constituted one required sample as defined in IP 71121.02-5.

b. Findings

No findings of significance were identified.

.2 Radiological Work Planning

a. Inspection Scope

The inspectors evaluated the interfaces between operations, radiation protection, maintenance, maintenance planning, scheduling, and engineering groups to identify interface problems or missing program elements.

This inspection constituted one optional sample as defined in IP 71121.02-5.

The inspectors assessed the integration of ALARA requirements into work procedures and radiological work planning documents to assess whether the licensee was implementing actions in radiological job planning in order to reduce dose.

This inspection constituted one optional sample as defined in IP 71121.02-5.

The inspectors evaluated the licensee's process for constructing or placing shielding in high dose rate areas. The inspectors reviewed the shielding requests initiated by the radiation protection group to evaluate the estimated dose rate reduction. The inspectors

also evaluated the responses of the engineering staff to the shielding requests, as applicable.

This inspection constituted one optional sample as defined in IP 71121.02-5.

The inspectors evaluated if the licensee's planning for radiological significant work activities included consideration of the benefits of dose rate reduction activities, such as shielding (provided by water filled components/piping), job scheduling, and shielding and scaffolding installation and removal activities.

This inspection constituted one optional sample as defined in IP 71121.02-5.

The licensee's post-job (work activity) reviews were evaluated to verify that identified problems were entered into the licensee's corrective action program.

This inspection constituted one optional sample as defined in IP 71121.02-5.

b. Findings

Introduction: A Green NRC-identified finding of very low safety-significance and associated NCV of TS 5.4.1.a were identified for the failure to implement procedures required to conduct timely reviews of job progress and implement actions necessary to reduce to workers exposure.

Description: Many RWPs used during the refueling outage (1R20) did not receive reviews required by licensee procedures. Procedure EN-RP-105, "Radiological Work Permits," Revision 6 indicates that RWPs greater than 1 rem of planned dose but less than 5 rem be reviewed when the dose received or hours worked approach 50 percent of the estimate. Additionally, RWPs greater than 5 rem of planned dose require work in progress (WIP) reviews when the dose received or hours worked approached 40 percent and again at 80 percent of the estimate. The inspectors reviewed 5 RWPs that exceeded 5 rem of exposure. Although some work in progress reviews were completed, very few were completed at the times specified by EN-RP-105. The work in progress reviews authorized additional exposure but did not evaluate the cause for the additional exposure nor were exposure mitigation efforts prescribed for the jobs. Consequently, additional exposure was received by the plant staff. The inspectors reviewed each of the jobs to quantify the additional exposure. After removing exposure for items that was outside of the licensee's control (e.g., higher than anticipated dose rates and unforeseeable fit-up issues), the inspectors did not identify any activity that exceeded 50 percent of the original estimate. Therefore, the inspectors determined that these items did not represent an ALARA Planning issue.

The inspectors identified notes contained in the ALARA files and other spreadsheets that indicated that the ALARA supervisor was aware that the work in progress reviews were needed during the refueling outage. However additional resources were not applied to ensure that work in progress reviews were completed when the dose received approached 40 percent and again at 80 percent of the estimate. Additionally, the deficiency was not placed into the licensee's corrective action program. Therefore, these activities did not receive appropriate management attention.

Analysis: The inspectors determined that the failure to follow procedures required by TS 5.4.1 was a performance deficiency. The finding is more than minor because it is associated with the Occupational Radiation Safety cornerstone attribute of Program and Process and adversely affects the cornerstone objective of protecting worker health and safety from exposure to radiation. Specifically, the failure to perform required work in progress reviews prevented the licensee from prescribing additional exposure mitigation techniques and therefore, additional exposure was received by the plant staff. The finding was assessed using the Occupational Radiation Safety-Significance Determination Process. The inspectors determined that this finding did not involve: (1) an ALARA finding per IMC 0612 Appendix E example 6 i; (2) an overexposure; (3) a substantial potential for overexposure; or (4) an impaired ability to assess doses. Consequently, the inspectors concluded that the SDP assessment for this finding was of very low safety-significance (Green).

As described above, this finding was caused by inadequate supervisory oversight. Consequently, the cause of this deficiency had a cross-cutting aspect in the area of human performance. Specifically, the licensee failed to ensure supervisory and management oversight of work activities. H.4(c).

Enforcement: Technical Specification 5.4.1.a states, in part, that written procedures shall be established, implemented, and maintained for activities recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33 Section 7.e.9 includes procedures for implementation of ALARA program. Procedure EN-RP-105, "Radiological Work Permits" Revision 6 implements requirements for performing ALARA reviews of RWPs. Contrary to this requirement, between March 22 and April 30, the licensee failed to implement many procedurally required work in progress reviews for RWPs. Corrective actions taken by the licensee included coaching of the ALARA Supervisor. Additional actions will be determined during the apparent cause evaluation. Because this finding is of very low safety-significance and has been entered into the licensee's corrective action program as CR-PLP-2009-04074, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000255/2009004-03, Failure to Perform Work In-progress Reviews.

.3 Verification of Dose Estimates and Exposure Tracking Systems

a. Inspection Scope

The inspectors reviewed the assumptions and bases for the current annual collective exposure estimate, including the applicable procedures, in order to evaluate the licensee's method for estimating work activity-specific exposures and the intended dose outcome. Dose rate and man-hour estimates were evaluated for reasonable accuracy.

This inspection constituted one required sample as defined in IP 71121.02-5.

b. Findings

No findings of significance were identified.

.4 Source-Term Reduction and Control

a. Inspection Scope

The inspectors reviewed licensee records to evaluate the historical trends and the current status of tracked plant source terms. The inspectors determined if the licensee was making allowances and had developing contingency plans for expected changes in the source term due to changes in plant fuel performance issues or changes in plant primary chemistry.

This inspection constituted one required sample as defined in IP 71121.02-5.

The inspectors verified that the licensee had developed an understanding of the plant source-term, including knowledge of input mechanisms to reduce the source term. The inspectors evaluated if the licensee had a source-term control strategy in place that included a cobalt reduction strategy, shutdown controls, and operating chemistry plan, which was designed to minimize the source-term external to the core. Other methods used by the licensee to control the source term including component and system decontamination and the use of shielding were also evaluated.

This inspection constituted one optional sample as defined in IP 71121.02-5.

The inspectors reviewed the licensee's identification of specific sources of radiation, along with exposure reduction actions and the priorities the licensee had established for implementation of those actions. The results that had been achieved against these priorities since the last refueling cycle were reviewed. For the current assessment period, source reduction evaluations were verified along with actions taken to reduce the overall source-term compared to the previous year.

This inspection constituted one optional sample as defined in IP 71121.02-5.

b. Findings

No findings of significance were identified.

.5 Declared Pregnant Workers.

a. Inspection Scope

The inspectors reviewed dose records of declared pregnant workers for the current assessment period to verify that the exposure results and monitoring controls employed by the licensee complied with the requirements of 10 CFR Part 20.

This inspection constituted one required sample as defined in IP 71121.02-5.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Mitigating Systems Performance Index - Residual Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI) - Residual Heat Removal System performance indicator for the period from the third quarter 2008 through the second quarter 2009. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, were used. The inspectors reviewed the licensee's operator narrative logs, system health reports, MSPI derivation reports, and selected condition reports for the period of July 2008 through June 2009 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. 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 1 MSPI residual heat removal system sample as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

.2 Mitigating Systems Performance Index - Emergency Alternating Current (AC) Power System

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - Emergency AC Power System performance indicator for the period from the third quarter 2008 through the second quarter 2009. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the Nuclear Energy Institute (NEI) Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, were used. The inspectors reviewed the licensee's operator narrative logs, MSPI derivation reports, issue reports, event reports and NRC Integrated Inspection Reports for the period of October 2008 through June 2009 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. 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 emergency AC power system sample as defined in IP 71151-05.

b. Findings

No findings of significance 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 corrective action program at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. Attributes reviewed included: the complete and accurate identification of the problem; that timeliness was commensurate with the safety significance; that evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and previous occurrences reviews were proper and adequate; and that the classification, prioritization, focus, and timeliness of corrective actions were commensurate with safety and sufficient to prevent recurrence of the issue. Minor issues entered into the licensee's corrective action program as a result of the inspectors' observations are included in the attached List of Documents Reviewed.

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

b. Findings

(1) Reduction in Containment Spray Header Level During Maintenance

Introduction: A finding of very low safety significance (Green) and an associated NCV of TS 5.4.1, Procedures, was self-revealed on August 26, 2009, when operators incorrectly implemented a procedure that connected a temporary pump to a containment spray header while attempting to fill the header. Specifically, the suction and discharge connections were swapped so that when the pump was turned on, water was pumped out of the header instead of into the header, reducing the level below the TS required minimum value.

Description: On August 26, 2009, operators entered containment to perform a routine, periodic fill of containment spray header 'A' using procedure ESSO-1, Containment

Spray Header Fill. The pump used to perform ESSO-1 was designed such that the suction and discharge ports can be easily confused with each other. The licensee assigned two work teams to perform the evolution to ensure workers complied with requirements for working in hot environments. The licensee performed a pre-job brief to prepare workers for the evolution. The brief did not include a discussion of how the hose was attached to the pump since the procedure stated the suction hose was permanently attached to the pump. One team then tested the pump to ensure proper operation outside containment while the other team prepared for containment entry. The pump was left with the suction and discharge hoses disconnected. After work commenced, when the operators went to connect the hoses to the pump in containment, the procedural note regarding the suction hose being permanently attached was noticed by the workers. The operators did not stop and notify supervision at this point of the discrepancy, as they believed they could resolve the issue using knowledge of typical pump design. At this point, an auxiliary operator trainee, under the supervision of a qualified auxiliary operator, connected the suction and discharge hoses to the incorrect ports on the pump. The improper hose attachment led to the drain down of the Spray header after the operator started the pump. Initially, the operators did not recognize the drain down, in part, because another note in the procedure states that "During the fill process, header pressure gauge may NOT read correctly." The operators stopped the pump because they were nearing the end of their heat stress stay time. After securing the pump, the operators checked the spray header pressure and recognized that the value was 61.6 psig, with 62.0 psig being the minimum TS value. The operators reported the condition to the Control Room and the Control Room Supervisor declared the system inoperable and entered the appropriate TS action statement for an inoperable containment spray header. The second team entered containment and the auxiliary operator on the second team identified the improper hose connection. After correcting the connection and contacting the control room, the second team filled the spray header. Time spent in the TS action statement was approximately 35 minutes.

Analysis: The inspectors determined that the improper connection of the temporary pump to the containment spray header was a performance deficiency warranting further significance determination using the SDP. The inspectors concluded that the issue was more than minor because it affected the Configuration Control attribute of the Mitigating Systems cornerstone in that it affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events. Specifically, the improper connection of the pump lowered header level below the TS allowed value which resulted in an inadvertent TS action statement entry. The inspectors utilized IMC 0609 Appendix A, "Determining the Significance of Reactor Inspection Findings for At-Power Situations," to determine the significance of the finding. The finding screened as Green, or very low safety significance, using the Phase 1 worksheets based on answering 'no' to all questions under the Mitigating Systems cornerstone in Table 4a. The finding had an associated cross-cutting aspect in the Work Practices component of the Human Performance cross-cutting area; namely, the licensee failed to appropriately communicate and use proper human error prevention techniques (H.4(a)). Specifically, the brief failed to cover a detailed picture of the pump provided in the briefing materials and workers did not stop and seek guidance when confronted with a discrepancy between the described and actual pump condition.

Enforcement: Technical Specification 5.4, Procedures, states in part that "written procedures shall be established, implemented, and maintained" as described in Regulatory Guide 1.33, Quality Assurance Program Requirements. Regulatory

Guide 1.33 states, in part, that “maintenance that can affect the performance of safety related equipment should be properly pre-planned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances.” Contrary to the above, on August 26, 2009, operators failed to properly implement the containment spray header fill procedure. Specifically, the licensee improperly connected a hose and drained the containment spray header below the TS minimum value. Header level remained below the TS value for approximately 35 minutes until operators were able to correctly connect the pump and fill the header. The licensee entered the issue into their corrective action program as CR-PLP-2009-4080, which included a root cause analysis. Because this violation was of very low safety significance and it was entered into the licensee’s corrective action program, this violation is being treated as a NCV, consistent with the NRC Enforcement Policy: NCV 05000255/2009004-04, Reduction in Containment Spray Header Water Level During Maintenance.

(2) Inadequate Analysis of Reheater Drain Tank T-4B Drain Line Vibration

Introduction: A finding of very low safety significance without an associated violation was identified by the inspectors for the licensee’s operation of the MSR system outside of its design such that two phase flow occurred creating significant vibration in the drain tank T-4B drain line. The licensee entered this issue into its corrective action program as condition report CR-PLP-2008-4020, evaluated the drain line vibration, and performed repairs and modifications that eliminated the excessive vibratory motion in the drain line.

Description: On December 31, 2007, the licensee identified a broken pipe hanger that supported the drain line for MSR drain tank T-4B. As described in condition report CR PLP-2007-06508, the drain line experienced two phase flow which caused significant vibration in the line. The licensee attempted to correct the condition but, as documented on September 26, 2008, in CR-PLP-2008-04020, could not establish T-4B Reheater Drain Tank level control to eliminate the two phase flow between the T-4B Reheater Drain Tank and the E-6B High Pressure Feedwater Heater.

The licensee initiated a corrective action associated with CR- PLP-2007-06508 to perform a pipe stress analysis to determine the effects of cyclic fatigue for the drain line vibratory motion. On August 21, 2008, the licensee completed their owner acceptance review of a contractor calculation that evaluated the vibratory motion of the drain line for MSR drain tank T-4B, Entergy Engineering Report PLP-RPT-08-0008, “Piping Vibration Analysis of MSR Line,” Revision 0. This report concluded that the piping alternating stress magnitude remained below the piping material endurance limit. Therefore, for the measured vibratory motions evaluated, the drain line was theoretically capable of withstanding an infinite number of cycles of vibration.

The inspectors identified report PLP-RPT-08-0008 used a non-conservative application of the industry standard, Part 3 of American Society of Mechanical Engineers (ASME) OM-SG-1994, “Standards and Guides for Operation and Maintenance of Nuclear Power Plants.” Specifically, the licensee did not apply the stress intensification factor as specified in the industry standard to calculate the alternating stress intensity due to the measured vibratory motion in accordance with paragraph 3.2.1(b) of OM-SG-1994 for piping stress evaluated using the rules of ASME Standard B31.1, “Power Piping,”

1973 Edition through Summer 1973 Addenda. The licensee initiated a corrective action associated with CR-PLP-2008-04020 to update the vendor report.

In Revision 2 of Structural Integrity Associates, Inc. calculation 0800418.302, "Piping Vibration Analysis of MSR Line," the piping alternating stress intensity determined in accordance with paragraph 3.2.1(b) of OM-SG-1994 in the drain line for MSR drain tank T-4B was calculated to be above the endurance limit at two locations. Therefore, for the measured vibratory motions evaluated, the drain line might not withstand an infinite number of vibratory cycles. The calculation recommended the addition of two new pipe supports to reduce the vibration stresses to below the endurance limit.

Subsequently, the licensee completed repairs that eliminated the two phase flow oscillations in the drain line for MSR drain tank T-4B. As a defense-in-depth measure, licensee engineering change EC-13729, "Additional Pipe Supports for the Reheater Drain Tank T-4B Drain Line," installed the two additional pipe supports as recommended in calculation 0800418.302. The inspectors verified that these changes eliminated the excessive vibratory motion in the drain line for MSR drain tank T-4B. The inspectors concluded that the licensee failed to meet the standards of configuration management defined in licensee procedure, Configuration Management, EN-DC-105 rev. 2 for the MSR line.

Analysis: The inspectors determined that operation of the system outside the design parameters for its configuration was a performance deficiency. The finding was determined to be more than minor because the finding was associated with the Initiating Events cornerstone attribute of equipment performance and adversely affected the cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the operation of the system outside the established design created reasonable doubt regarding long term integrity of the pipe because application of the OM-SG-1994 standard resulted in a stress intensity above the endurance limit at two locations.

The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of Findings," Table 4a for the Initiating Events cornerstone. Based on a "No" answer to all the questions in the Initiating Events cornerstone column of Table 4a, the finding was determined to be of very low safety significance (Green). Specifically, the finding does not concurrently affect mitigation equipment.

This finding has a cross-cutting aspect in the area of problem identification and resolution, corrective action program, because the licensee failed to ensure that issues potentially impacting nuclear safety are promptly identified, fully evaluated, and that actions are taken to address safety issues in a timely manner, commensurate with their significance. Specifically, the licensee failed to evaluate and correct the condition of the pipe until the NRC raised questions regarding the long term effects the vibration would have on pipe integrity. [P.1(c)]

Enforcement: This finding was not subject to NRC enforcement because the performance deficiency did not involve a violation of regulatory requirements. Specifically, the drain line for MSR drain tank T-4B is classified as non-safety-related.

Because the finding does not involve a violation of regulatory requirements, has been entered into the corrective action program as CR-PLP-2008-4020, and has very low safety significance, it is identified as FIN 05000255/2009004-05, Excessive Vibration in a Steam Line.

.2 Daily Corrective Action Program Reviews

a. Scope

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

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

b. Findings

No findings of significance were identified.

.3 Selected Issue Follow-Up Inspection: Failure of Shutdown Cooling Valve CV-3006 Twice During 1R20 Refueling Outage

a. Scope

The inspectors reviewed the licensee response to and corrective actions associated with the failures of the Shutdown Cooling (SDC) flow bypass valve, CV-3006, during the 1R20 refueling outage. During SDC operation, flow is typically proportioned through the SDC heat exchangers via CV-3025 and in a parallel path around the heat exchangers through CV-3006. Flow is controlled through both valves to meet temperature and minimum flow requirements for the Primary Cooling System (PCS). On April 5, 2009 and again on April 25, 2009, CV-3006 failed to the full-shut position. The failure occurred due to the feedback arm becoming disconnected from the positioner. In both cases, a retaining clip for a pin that held the feedback arm to the positioner popped out causing the feedback arm to separate and fall away from the positioner. The positioner then sensed that the valve was fully open, which in turn caused it to actually shut the valve. After the first occurrence, the licensee replaced the retaining clip and reconnected the feedback arm. After the second occurrence, the licensee installed a more robust clip and scheduled work for future realignment of the feedback arm. An apparent cause evaluation subsequently determined that off-vertical alignment of the feedback arm allowed sufficient sideways force during valve operation to dislodge the retaining clip.

The inspectors reviewed the apparent cause evaluation and associated reference documents. Additionally, members of the valve team and those sent to work on the valve were interviewed. The inspectors focused on the extent of condition, operators' response, and adequacy of corrective actions.

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

b. Findings

Introduction: A finding of very low safety significance (Green) and an associated NCV of TS 5.4.1, Procedures, was identified by the inspectors for the failure to implement procedures to properly align the positioner feedback arm for the shutdown cooling (SDC) flow control valve CV-3006 during 1R20 refueling outage. Specifically, alignment of the valve positioner feedback arm that was contrary to vendor manual guidance caused the arm to detach during operation which resulted in the closure of the valve.

Description: On April 5, 2009 during the 1R20 refueling outage, the plant was in Mode 6 with a PCS elevation of >647' in the refueling cavity. During performance of a surveillance test, operators in the control room were attempting to balance SDC flow to the PCS loops when they noticed that total SDC flow was decreasing. Operators attempted to further open CV-3006, the SDC heat exchanger bypass valve, to increase flow. Although the flow controller indicated a valve position change, flowrate continued to go down, eventually dropping below TS limits. Operators entered the procedure for a loss of shutdown cooling and restored SDC flow back above the TS required minimum value by further opening the SDC heat exchanger outlet valve CV-3025. Technical Specification required minimum flow at the time was 1000 gallons per minute. Flow had dropped to approximately 850 gallons per minute for about 2-3 minutes. By opening CV-3025 further, more flow was directed through the SDC heat exchangers instead of through the bypass valve (CV-3006), therefore a reduction in SDC outlet temperature also occurred. SDC outlet cooling temperature briefly dropped below limits in GOP-14, Shutdown Cooling Operations.

In response to the transient, an operator sent to investigate CV-3006 locally identified that the valve was fully shut and that the feedback arm for the valve positioner had separated from the positioner. The licensee took local control of the valve and re-established the temperature and flow balance. The licensee performed a work order to troubleshoot and reconnect the feedback arm so operations could restore remote control of the valve. The feedback arm for CV-3006 acts to mechanically translate valve motion to the positioner. The feedback arm is connected to the positioner arm via a pin which is held in place by a small retaining clip. Workers discovered the pin had fallen out but could not find the retaining clip. When the feedback arm disconnected, the positioner sensed that the valve was full-open and acted to shut the valve. Workers obtained a new clip, reconnected the feedback arm, and restored normal control of the valve.

Approximately 20 days later, the valve failed again in the same manner with the plant in Mode 5 with the PCS loops filled and SDC in operation. The inadvertent closure of CV-3006 again caused a temperature excursion and reduction in SDC flow below the TS required minimum value of 2810 gallons per minute for a short period of time. Manual control of the valve was established and further work done to restore the valve. A more robust retaining clip was installed to ensure the pin would not detach again. Outside of the troubleshooting efforts, workers also noted this time that the feedback arm appeared to have an off-vertical alignment between the positioner and the connection to the valve. With this new information, an apparent cause evaluation (initiated after the first failure of CV-3006) later determined that this misalignment

provided a force during operation that dislodged the retaining clip, causing the feedback arm to separate. During a review of the events and apparent cause evaluation, the inspectors later noted that the positioner vendor manual contained guidance to vertically align the feedback arm. A plant walkdown of some similar positioners by the inspectors revealed some other feedback arms also appeared out of vertical alignment. As part of the review, the inspectors also questioned the adequacy of some of the corrective actions. Specifically, the licensee determined that training would not be required regarding feedback arm alignment due to a planned change to the calibration sheets that would clarify alignment requirements. The inspectors questioned whether the change that was made was clear enough given the lack of specific training on the topic. Subsequently, more specific wording was incorporated and training topics were added to the curriculum associated with the valve positioners. Corrective actions were also added with a specific due date to check the additional valves in the plant with similar positioners. It should be noted that the licensee did perform an initial walkdown of a sample of risk significant positioners to check the linkages and alignment as part of the extent of condition. However, it was not initially apparent when the other valves in the plant would be checked.

Analysis: The inspectors determined that the failure to properly align the valve positioner feedback arm as described in the vendor manual was a performance deficiency warranting further significance determination using the SDP. The issue was more than minor per IMC 0612 Appendix B as it affected the Equipment Performance attribute of the Initiating Events cornerstone, whose objective is to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, the failure of CV-3006 due to the misalignment caused temperature excursions in the SDC system and reduced SDC flow below TS required values.

The inspectors utilized IMC 0609 Appendix G, Shutdown Operations Significance Determination Process, to further evaluate the significance of the finding as the failures occurred during the refueling outage. Utilizing Checklist 4 of Attachment 1 of Appendix G, Pressurized Water Reactor Refueling Operation, the inspectors determined that the equipment requirements (section I C) under the core heat removal guidelines were not met. The finding screened as very low safety significance (Green) because all other requirements were met and because the finding did not represent a "loss of control" as defined by Appendix G (Figure 1).

The inspectors determined that the finding had an associated cross-cutting aspect in the area of Problem Identification and Resolution under the Corrective Action Program Component. Specifically, that the licensee failed to take appropriate corrective actions to address safety issues (P.1(d)). This is based on the limited troubleshooting after the first failure. Specific work instructions utilized did not reference the vendor manual and were focused mainly on getting the feedback arm reattached.

Enforcement: Technical Specification 5.4, Procedures, states in part that "written procedures shall be established, implemented, and maintained" as described in Regulatory Guide 1.33, Quality Assurance Program Requirements. Regulatory Guide 1.33 states, in part, that "maintenance that can affect the performance of safety related equipment should be properly pre-planned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances." Contrary to these requirements, on April 6, 2009, and April 25, 2009, the

licensee's written procedures on safety related valve CV-3006 were not appropriate for the circumstances, and led to the feedback arm being installed contrary to vendor recommendations. The licensee entered the condition CR-PLP-2009-01763. After the second failure, the licensee installed a more robust retaining clip and added work scope to the first outage schedule to properly align the feedback arm. Because this violation was of very low safety significance and it was entered into the licensee's corrective action program, this violation is being treated as a NCV, consistent with the NRC Enforcement Policy: NCV 05000255/2009004-06, Failure of the Shutdown Cooling Flow Bypass Valve CV-3006.

.4 Selected Issue Follow-Up: Significant Cross Cutting Issue in H.2.c

a. Scope

In response to a significant cross cutting issue in H.2.c, "Complete, accurate and up to date design documentation, procedures, and work packages, and correct labeling of components," the inspectors reviewed the licensee's root cause and corrective actions. The licensee identified the following root cause:

"Plant personnel did not recognize the importance of high quality procedures/work instructions as evidenced by an inadequate focus on prioritizing, monitoring, scheduling, and implementing needed procedure changes."

The inspectors discussed the root cause with the analysts and members of licensee management. Both the root cause document and discussions with the licensee clarify that over the last few years the experience level of site personnel had dropped. Therefore, some site personnel needed additional procedural detail to be able to successfully complete a procedure. The licensee also identified that procedure changes were not being prioritized and tracked to ensure timely completion. This created a large backlog in procedure revisions that site management was not aware. The licensee has established a team to upgrade site procedures and has instituted processes to prioritize and manage procedure revisions. The inspectors concluded that the licensee had developed a reasonable plan to address the cross cutting issue. However, the licensee has not progressed enough on the plan for the inspectors to develop confidence that the efforts will be successful. The issue remained open in the mid-cycle review.

b. Findings

No findings of significance were identified.

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors conducted observations of security force personnel and activities to ensure that the activities were consistent with licensee

security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings of significance were identified.

4OA6 Management Meetings

.1 Exit Meeting Summary

On October 8, the inspectors presented the inspection results to 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 review associated with the analysis of vibratory motion in the drain line for MSR drain tank T-4B with Mr. B. Kemp, via telephone on September 29, 2009.
- The results of the access control to radiologically significant areas and ALARA inspection with the Acting Site Vice President, Mr. A. Blind, and other members of your staff, on August 31, 2009.

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.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

C. Schwarz, Site Vice President
V. Beilfuss, Project Manager
A. Blind, Engineering Director
N. Brott, Emergency Preparedness Coordinator
K. Bowers, Radiation Protection
T. Davis, Regulatory Compliance
B. Dotson, Regulatory Compliance
J. Fontaine, Senior Emergency Planning Coordinator
J. Ford, Corrective Action Manager
M. Ginzel, Radiation Protection
G. Goralski, Design Engineering Supervisor
T. Kirwin, Plant General Manager
D. Moody, radiation Protection
B. Nixon, Assistant Operations Manager
T. Shewmaker, Chemistry Manager
C. Sherman, Radiation Protection Manager
M. Sicard, Operations Manager
G. Sleeper, Assistant Operations Manager
D. Villicana – Radiation Protection Supervisor - ALARA

Nuclear Regulatory Commission

W. Lyons
M. Yoder
K. Wood
J. Neurauter

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

05000255/2009004-01	NCV	Gas Void in HPSI Suction Line. (Section 1R19)
05000255/2009004-02	NCV	Entering a High Radiation Area without an adequate awareness of radiological conditions. (Section 2OS1.4)
05000255/2009004-03	NCV	Failure to perform work in-progress reviews. (Section 2OS2.2)
05000255/2009004-04	NCV	Reduction in Containment Spray Header Level During Maintenance. (Section 4OA2)
05000255/2009004-05	FIN	Inadequate Analysis of Reheater Drain Tank T-4B Drain Line Vibration. (Section 4OA2)
05000255/2009004-06	NCV	Failures of the Shutdown Cooling Flow Bypass Valve CV-3006. (Section 4OA2)

Closed

05000255/2009004-01	NCV	Gas Void in HPSI Suction Line. (Section 1R19)
05000255/2009004-02	NCV	Entering a High Radiation Area without an adequate awareness of radiological conditions. (Section 2OS1.4)
05000255/2009004-03	NCV	Failure to perform work in-progress reviews. (Section 2OS2.2)
05000255/2009004-04	NCV	Reduction in Containment Spray Header Level During Maintenance. (Section 4OA2)
05000255/2009004-05	FIN	Inadequate Analysis of Reheater Drain Tank T-4B Drain Line Vibration. (Section 4OA2)
05000255/2009004-06	NCV	Failures of the Shutdown Cooling Flow Bypass Valve CV-3006. (Section 4OA2)

DOCUMENTS REVIEWED

1R01 Adverse Weather Protection

- WO 51625014, Lightning Protection System
- NFPA 780, Installation of Lightning Protection Systems, 2008 Edition
- CR-PLP-2009-3968, Inadvertent Elimination of Power Factor Testing of Lightning Arrestors, August 18, 2009.
- Various Palisades Model Work Orders for Transformer Maintenance
- CR-PLP-2009-4455, Cannot Determine Status and Condition of Lightning Protection on Various Buildings, September 24, 2009.
- CR-PLP-2009-4149, Potential Weakness in Static Line Design, September 1, 2009.

1R04 Equipment Alignment

- SOP-21, Fire Protection System, Revision 21
- ESSO-10, Shutdown Cooling Heat Exchanger and Spray Header Flush, Revision 7
- Drawing M-204 Sheet A, Safety Injection, Containment Spray, and Shutdown Cooling System, Revision 8
- SOP-16, Component Cooling Water System, Revision 32
- DBD-1.01, Component Cooling Water System, Revision 7
- SPV: Install Block on VOP-909 for Letdown HX Protection, August 20, 2009
- CR-PLP-2009-04312, In Service Test of CCW Pump P-52C, P-52A automatically started in STBY, September 9, 2009
- CR-PLP-2008-04987, P-52C CCW pump shaft seal oil leakage, December 10, 2008
- SOP-22, Emergency Diesel Generators, Revision 46

1R05 Fire Protection

- FPSP-MO-1, Fire Suppression Water System Valve Alignment, Revision 12
- ENN-DC-189, Fire Drills, Revision 1
- Palisades Fire Drill Unannounced Scenario, dated July 8, 2009
- FPIP-3, Plant Fire Brigade, Revision 13
- CR-PLP-2008-4630, Fire brigade leader did not have communications with offsite fire departments, November 13, 2008
- PNP Fire Hazards Analysis, Revision 7
- CR-PLP-2009-3358, Fire Barrier with Large Opening without Justification, June 30, 2009.
- Drawing M-216, Sheet 6, Fire Protection, Revision 10
- EA-APR-98-005, Barrier Segment 229S/233N Fire Damper Evaluation
- EA-APR-98-006, Barrier Segment 227E/231W Penetration Evaluation
- EA-APR-98-003, Penetrations Between 590', 602', and 607' Auxiliary Building

1R11 Licensed Operator Regualification Program

- ONP-25.1, Fire Which Threatens Safety Related Equipment, Revision 19
- ONP-25.2, Alternate Safe Shutdown Procedure, Revision 25
- Palisades Simulator Exercise Guide PL-LOR-09D-005S, ONP-25.1, 25.2, Revision 0
- Licensed Operator Qualification Database, printed September 10, 2009

1R12 Maintenance Effectiveness

- Various Operations Log Entries, third Quarter 2008 thru second Quarter 2009
- Containment Spray System Health Reports, third Quarter 2008 thru second Quarter 2009
- CR-PLP-2007-2126, A-Containment Spray Header Inoperable, May 18, 2007
- CR-PLP-2007-2817, P-54C Oil Issuing From Vent Cap, July 9, 2007
- CR-PLP-2007-2805, P-54A has an Active Oil Leak on the Pump Bearing, July 8, 2007
- CR-PLP-2007-2829, Two Recent Instances of Painted Vent Caps on Safety Related Pumps, July 10, 2007
- CR-PLP-2007-3146, Less-than Thorough EOC Performed for Painted Vent Caps, August 2, 2007
- CR-PLP-2007-5241, Wrong Gasket used During Reassembly of MV-ES3222, October 14, 2007
- CR-PLP-2007-6480, Multiple Oil Additions to P-54A, December 28, 2007
- CR-PLP-2008-3675, Containment Spray Pump Motor Outage Longer than Expected, August 28, 2008
- CR-PLP-2008-4431, Right Train Containment Cooling Inoperable after Gauge Replacement, October 28, 2008
- CR-PLP-2008-4946, Knurled Filler-Cap Overtightened allowing Oil to Drain to Lower Bearing, December 8, 2008
- CR-PLP-2009-2025, Higher Containment Spray Flow during RO-98, April 13, 2009
- CR-PLP-2009-4080, Entered 72 hour TS LCO during Containment Spray Header Fill Procedure, August 26, 2009

1R13 Maintenance Risk Assessments and Emergent Work Control

- ESSO-10, Shutdown Cooling Heat Exchanger and Spray Header Flush, Revision 7
- Drawing M-204 Sheet A, Safety Injection, Containment Spray, and Shutdown Cooling System, Revision 8
- CR-PLP-2009-3377, Gas void identified in HPSI subcooling line, July 1, 2009
- C-PAL-97-0355, Procedures that allow opening CV-3070 or 3071 during plant operating conditions requiring spray trains to be operable should be revised, July 15, 1997
- ADM 4.02, Control Of Equipment, rev. 52
- ONP-3, Loss of Main Feedwater, Revision 21

1R15 Operability Determinations

- PO-1, Operations Pre-start Up tests Basis, Revision 2
- CR-PLP-2009-03784, Pressurizer Heater Transformer Amps have Lowered, August 3, 2009
- CR-PLP-2009-03852, Pressurizer Heater transformer Amps have Lowered, August 8, 2009
- CR-PLP-2009-03885, Non-conservatism in Basis Calculation for Pressurizer Heaters, August 11, 2009
- EA-AOVCAP-GATE-ESS-01, Actuator Capability review for Air Operated Gate Valves in the Engineered Safeguards System, Revision 1
- CR-PLP-2009-03012, Air Supply Pressure to 3027 is Low, June 8, 2009
- ARP-5, Primary Coolant Pump, Steam Generator and Rod Drives Schemes EK-09, Revision 77

1R19 Post Maintenance Testing

- M-398, Level Settings Diagram For Emergency Diesel Generator Day Tank T-25A & B, Revision 6
- LS-1452, Diesel Generator 1-2 Control Level Calibration, September 22, 2009
- CR-PLP-2009-04394, Received alarm EK-0560, Diesel Generator Day Tank T-25B High/Low Level, expectedly, September 21,2009
- DBD-5.01, Diesel Engine and Auxiliary Systems, Revision 5
- DBD-5.03, Emergency Diesel Generator Performance Criteria, Revision 6
- WO-00207899, Check Calibration of LS-1453, T-25B Control Level, September 23, 2009
- Admin 5.19, Post Maintenance Testing, Revision 13
- MSM-M-57, Universal Diagnostic System Operating Procedure, Revision 8
- POC-0727, Calibration Sheet for CV-0727
- DBD 1.03, Auxiliary Feedwater System, Revision 7
- EA-AOVSYS-FWS-01, Valve Information for CV-0727, Revision 3
- WO 00201600, AFW P-8A Motor Bearing Oil Change
- WO 00201601, RO-145A P-8A Comprehensive Pump Test
- WO 51691513, CV-0727 Valve Diagnostics
- WO 51624009, Test Relay 162-202
- WO 00154701, 152-202, Replace MOC Switch Bayonets with Stronger Bayonets
- QO-15, Inservice Test Procedure, Component Cooling Water Pumps, Revision 28
- CCS-M-5, Component Cooling Water Pump Disassembly, Inspection and Reassembly of P-52C, P-52A, Revision 12
- ESSO-10, Shutdown Cooling Heat Exchanger and Spray Header Flush, Revision 7
- CR-PLP-2009-3377, Gas Void was Identified in the HPSI Sub-cooling Line, July 1, 2009
- FAI/09-234, Evaluation of Gas Intrusion to the P-66B Pump Suction for Palisades, August 2009

1R22 Surveillance Testing

- QO-1, Safety injection System, Revision 58
- MO-7A-1, Emergency Diesel Generator 1-1, Revision 70
- QO-14, Inservice Test of P-7C Service Water Pump Basis Document, Revision 16
- WO 52189226, QO-14C, P-7C Inservice Test of Service Water Pump
- RE-131, Emergency Diesel Generator Load Reject, Revision 4
- Basis Document for RE-131 and RE-132, Revision 1
- DWO-1, Operator's Daily/Weekly Items, Modes 1,2,3 and 4, Revision 85

2OS1 Access Control to Radiologically Significant Areas

- CR-PLP-2009-00446; Locked High Radiation Key Control; 02/03/2009
- CR-PLP-2009-00684; Locked High Radiation Area Key Inventory; 02/18/2009
- CR-PLP-2009-01884; Two Valve Technicians Were Sent To West Safeguards Room to Place Spring Spacers on Valve CV-3059; 04/08/2009
- CR-PLP-2009-02068; Lock High Radiation Area Coverage Control Lost Control of Cameras; 04/14/2009
- EN-RP-101; Access Control for Radiologically Control Areas, Revision 4
- EN-RP-203; Dose Assessment; Revision 3

2OS2 As-Low-As-Is-Reasonably-Achievable Planning and Controls

- 1R20 Radiation Protection Report; date not provided
- CR-PLP-2008-00178; Radiation Work Permits Documentation not Completed for 2007 Outage; 01/14/2008
- CR-PLP-2009-04074; Work in-Progress Reviews not Completed in Accordance with EN-RP-105; 08/25/2009
- EN-RP-105; Radiological Work Permits, Revision 6
- EN-RP-110; ALARA Program; Revision 6
- EN-RP-205; Prenatal Monitoring; Revision 3
- RWP and Associated ALARA Files; RWP 2009-0400; Radiation Protection
- RWP and Associated ALARA Files; RWP 2009-0416; Primary Coolant Pump Motor Replacement "D"
- RWP and Associated ALARA Files; RWP 2009-0417; Primary Coolant Pump Seal – Replace
- RWP and Associated ALARA Files; RWP 2009-0418; P-50D Impeller Replacement
- RWP and Associated ALARA Files; RWP 2009-0424; Scaffolding in Containment
- RWP and Associated ALARA Files; RWP 2009-0433; Refuel Project – Rx Vessel Disassembly
- RWP and Associated ALARA Files; RWP 2009-0434; Refuel Project – Rx Vessel Reassembly
- RWP and Associated ALARA Files; RWP 2009-0488; Primary Coolant Pump P-50D Rework

4OA1 Performance Indicator Verification

- Containment Spray System Health Reports, 3rd Quarter 2008 thru 2nd Quarter 2009
- Containment Spray System Health Reports, 3rd Quarter 2008 thru 2nd Quarter 2009
- Drawing M-204, Sheet 1, Safety Injection, Containment Spray, and Shutdown Cooling System, Revision 76
- Drawing M-204, Sheet 1, Safety Injection, Containment Spray, and Shutdown Cooling System, Revision 76
- NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 5
- NEI 99-02, Regulatory Assessment Performance Indicator Guideline, Revision 5
- NRC EDG Validation Packages, October 2008 through June 2009
- NRC EDG Validation Packages, October 2008 through June 2009
- Palisades MSPI Basis Document, June 26, 2008
- Palisades MSPI Basis Document, June 26, 2008
- SOP-3, Safety Injection and Shutdown Cooling System, Revision 76
- SOP-3, Safety Injection and Shutdown Cooling System, Revision 76
- Various Operations Log Entries, third Quarter 2008 thru second Quarter 2009
- Various Operations Log Entries, third Quarter 2008 thru second Quarter 2009

4OA2 Problem Identification and Resolution

- CR-PLP-2007-6508; Pipe Hanger Broke on MSR Drain Piping; dated December 31, 2007
- CR-PLP-2008-4020; T-4B Level Control Is an OPS Concern; dated September 26, 2008
- CR-PLP-2009-00917, NRC Substantive Cross-Cutting Issue (H.2(c))
- CR-PLP-2009-00917, NRC Substantive Cross-Cutting Issue, (H.2(c), Revision 1
- CR-PLP-2009-1763, While Attempting to Balance Shutdown Cooling Flow, Flow Slowly Degraded, dated 4/6/2009
- CR-PLP-2009-2368, Control Room Observed Indications that CV-3006 has Failed Closed, dated 4/25/2009
- CR-PLP-2009-4068, Discussion with NRC Resident Regarding Corrective Actions for CR-PLP-2009-1763, dated 8/25/2009

- EC-13729; Engineering Change: Additional Pipe Supports for the Reheater Drain Tank T-4B Drain Line; Revision 0
- Masoneilan Electropneumatic Positioner Vendor Manual
- Number 0800414.302; Structural Integrity Associates, Inc. Calculation: Palisades MSR Vibration; Revision 2
- OJT/TPE Task PL-MIC-100-036, Maintain Valves, Positioners, and Actuators, Revision 0
- PLP-RPT-08-0008; Entergy Engineering Report: Piping Vibration Analysis of MSR Line; Revision 0
- POC-0306 Calibration Sheet for CV-3006
- SOP-3, Safety Injection and Shutdown Cooling System, Revision 76
- WO 00189543, CV-3006 SDC HX Bypass Failed Closed

LIST OF ACRONYMS USED

AC	Alternating Current
ALARA	As Low As is Reasonably Achievable
ASME	American Society of Mechanical Engineers
CFR	Code of Federal Regulations
CR	Condition Report
ECCS	Emergency Core Cooling System
EDG	Emergency Diesel Generator
HPSI	High Pressure Safety Injection
HRA	High Radiation Area
IMC	Inspection Manual Chapter
IP	Inspection Procedure
MSPI	Mitigating Systems Performance Index
MSR	Moisture Separator Reheater
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	U.S. Nuclear Regulatory Commission
PCS	Primary Cooling System
PI	Performance Indicator
RWP	Radiation Work Permit
SDC	Shutdown Cooling
SDP	Significance Determination Process
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report

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Sincerely,

/RA/

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

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Letter to C. Schwarz from J. Giessner dated November 4, 2009.

SUBJECT: PALISADES NUCLEAR PLANT INTEGRATED INSPECTION
REPORT 05000255/2009004

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