



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION III
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February 1, 2010

Mr. Mark Bezilla
Site Vice President
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Perry Nuclear Power Plant
P. O. Box 97, 10 Center Road, A-PY-A290
Perry, OH 44081-0097

**SUBJECT: PERRY NUCLEAR POWER PLANT NRC INTEGRATED
INSPECTION REPORT 05000440/2009005**

Dear Mr. Bezilla:

On December 31, 2009, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Perry Nuclear Power Plant. The enclosed report documents the inspection findings, which were discussed on January 6, 2010, with you and other members of your staff.

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

Based on the results of this inspection, one self-revealed and two NRC-identified findings of very low safety significance were identified. One of the findings involved a violation of NRC requirements. However, because of its very low safety significance, and because the issue was entered into your corrective action program, the NRC is treating the issue as a non-cited violation in accordance with Section VI.A.1 of the NRC Enforcement Policy. Additionally, one licensee-identified violation is listed in Section 4OA7 of this report.

If you contest the subject or severity of this Non-Cited Violation, 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 Perry Nuclear Power 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 Perry Nuclear Power Plant. The information that you provide will be considered in accordance with Inspection Manual Chapter 0305.

M. Bezilla

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Sincerely,

/RA/

Jamnes L. Cameron, Chief
Projects Branch 6
Division of Reactor Projects

Docket No. 50-440
License No. NPF-58

Enclosure: Inspection Report 05000440/2009005
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-440
License No: NPF-58

Report No: 050000440/2009005

Licensee: FirstEnergy Nuclear Operating Company (FENOC)

Facility: Perry Nuclear Power Plant, Unit 1

Location: Perry, Ohio

Dates: October 1, 2009, through December 31, 2009

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Enclosure

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SUMMARY OF FINDINGS

IR 05000440/2009005; 10/01/2009 – 12/31/2009; Operability Evaluations; Access Control to Radiologically Significant Areas; Other Activities.

The inspection was conducted by resident and regional inspectors. The inspection report (IR) covers a 3-month period of resident inspection. Three green findings, one of which was a 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 December 2006.

A. Inspector-Identified and Self-Revealed Findings

Cornerstone: Initiating Event

Green. A finding of very low significance was self-revealed on October 15, 2009, when one of two reactor recirculation pumps failed to transfer to slow speed while operators were attempting to downshift both pumps. The finding involved the licensee's failure to adhere to maintenance instructions when personnel incorrectly assembled a relay contactor during maintenance activities on an 'A' recirculation pump low frequency motor generator relay panel. The improperly assembled contactor led to the failure of the 2A breaker to close and re-energize recirculation pump 'A' in slow speed, which caused the loss of the pump and a subsequent unplanned drop in power. No violation of regulatory requirements occurred, and the issue was entered into the licensee's corrective action program.

The failure to adhere to the maintenance instructions resulted in the loss of recirculation of pump 'A,' which caused an actual upset in plant stability, and directly affected the objective for the Initiating Events Cornerstone. The finding was more than minor because the reactor recirculation pump failure to downshift affected the equipment performance attributes of availability and reliability of the Initiating Events Cornerstone of Reactor Safety. The issue was of very low safety significance because the finding did not result in exceeding the Technical Specification limit for identified reactor coolant system leakage and did not affect other mitigation systems; the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available; and the finding did not increase the likelihood of a fire or internal/external flood. The primary cause of this finding was related to the cross-cutting area of human performance, per IMC 0305 H.4.a., work practices, human error prevention techniques, because the licensee did not ensure that appropriate human error prevention techniques were used. (Section 1R15)

Cornerstone: Occupational Radiation Safety

- Green. The inspectors identified a finding of very low safety significance and an associated NCV of Technical Specification 5.7.1 for the failure to conspicuously post a high radiation area on the 599' elevation of the containment building. Corrective actions included instituting high radiation area controls when the traverse in-core probe system

is operated. The licensee entered the issue into its corrective action program as Condition Reports 09-59344 and 09-67987.

The finding was more than minor because it impacted the Occupational Radiation Safety Cornerstone objective for ensuring adequate protection of worker health and safety from exposure to radiation in the attribute of program and process for as-low-as-is-reasonably-achievable (ALARA) planning, in that, not conspicuously posting high radiation areas may result in unnecessary and unplanned radiation exposures to workers. The finding was determined to be of very low safety significance because it was not an ALARA planning issue, there was no overexposure nor potential for overexposure, and the licensee's ability to assess dose was not compromised. The primary cause of this finding was related to the cross-cutting area of human performance in work practices, per IMC 0305 H.4.a., in that, personnel work practices and human performance error reduction techniques were not used commensurate with the risk of the assigned task. (Section 2OS1)

- Green. The inspectors identified a finding of very low safety significance for inadequate job planning and ineffective work controls which adversely impacted the licensee's ability to minimize dose for the alternate decay heat removal (ADHR) project during Refuel Outage 12. Specifically, controls were not effectively implemented to reduce ambient radiation levels, and minimize in-field work hours for craft personnel. The issue resulted in an actual dose outcome that was not consistent with the planned, intended dose for work associated with modifications to the ADHR. Corrective actions were implemented to address the organization and programmatic deficiencies in managing the installation of major plant modifications.

The finding was more than minor because it impacted the Occupational Radiation Safety Cornerstone objective for ensuring adequate protection of worker health and safety from exposure to radiation in the attribute of program and process for ALARA planning, in that, ineffective ALARA planning and work control deficiencies contributed to an actual increase in worker doses in excess of five person-rem and exceeded the licensee's initial intended dose estimates by more than 50 percent. The finding did not involve: (1) an overexposure; (2) a substantial potential for an overexposure; or (3) an impaired ability to assess dose. While the finding involved ALARA planning and controls, the 3-year rolling average dose for the Perry Plant was less than the SDP threshold of 240-person-rem for boiling water reactors at the time the performance deficiency occurred. Consequently, the inspectors concluded through the SDP assessment that this is a finding of very low safety-significance. The finding was determined to be associated with a cross-cutting aspect in the area of human performance in work controls, per IMC 0305 H.3.a., in that, the licensee did not appropriately plan work activities by incorporating radiological safety. (Section 4OA5)

B. Licensee-Identified Violations

One violation of very low safety significance that was identified by the licensee has been reviewed by the inspectors. Corrective actions planned or taken by the licensee have been entered into the licensee's corrective action program. This violation and corrective action tracking number are listed in Section 4OA7 of this report.

REPORT DETAILS

Summary of Plant Status

The plant began the inspection period at 100 percent power. On October 15, 2009, the operators began a controlled plant shutdown at 12:18 p.m. and the plant entered Mode 3 on October 16, 2009, at 12:48 a.m., after the insertion of a manual reactor scram from 31 percent reactor power. The plant entered Mode 4 on October 18, 2009, at 4:29 a.m. as repairs and troubleshooting of the cabling for emergency service water (ESW) pump 'B' continued. Plant startup was commenced on November 1, 2009, with criticality achieved at 10:55 p.m. and the plant synchronized to the grid at 1:00 a.m. on November 3, 2009. The plant returned to full power on November 6, 2009.

1. REACTOR SAFETY

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

1R01 Adverse Weather Protection – External Flooding (71111.01)

a. Inspection Scope

The inspectors evaluated the design, material condition, and procedures for coping with the design basis probable maximum flood. The evaluation included a review to check for deviations from the descriptions provided in the Updated Safety Analysis Report (USAR) for features intended to mitigate the potential for flooding from external factors. As part of this evaluation, the inspectors checked for obstructions that could prevent draining and determined that barriers required to mitigate the flood were in place and operable. Additionally, the inspectors performed a walkdown of the protected area to identify any modification to the site which would inhibit site drainage during a probable maximum precipitation event or allow water ingress past a barrier. The inspectors also reviewed the abnormal operating procedure for mitigating the design basis flood to ensure it could be implemented as written.

This inspection constituted one external flooding sample as defined in Inspection Procedure (IP) 71111.01-05.

b. Findings

No findings of significance were identified.

1R04 Quarterly Equipment Alignment (71111.04Q)

a. Inspection Scope

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

- Emergency Service Water including the main control room control switches, the Div 1 Emergency Diesel Generator (EDG), the 'A' and 'B' emergency core

cooling (ECC) heat exchangers, the high pressure core spray (HPCS) pump, and the loop 'A' and 'B' keep-fill system;

- Div 1 EDG starting air, jacket cooling and fuel oil system;
- 'B' Emergency Closed Cooling System; and
- 'A' Annulus Exhaust Gas Treatment System (AEGTS).

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstone 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, USAR, Technical Specification (TS) requirements, outstanding work orders (WOs), condition reports (CRs), 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 (CAP) with the appropriate significance characterization. Documents reviewed are listed in the Attachment.

These activities constituted four partial system walkdown samples 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:

- Fire Zone 1AB; Auxiliary Building 620'-6" Elevation;
- Fire Zone TPB; Turbine Power Building;
- Fire Zone 0EW-1A and 0EW-1B; ESW Pumphouse;
- Fire Zone TB-624' /620' East and West; Turbine Building; and
- Fire Zone OCC-3c; Division 1 4160 V and 480 V Switchgear Room.

The inspectors reviewed areas to assess if the licensee had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant, effectively maintained fire detection and suppression capability, maintained passive fire protection features in good material condition, and implemented adequate compensatory measures for out-of-service, degraded, or inoperable fire protection

equipment, systems, or features in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to impact equipment which could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the Attachment, the inspectors verified the following:

- fire hoses and extinguishers were in their designated locations and available for immediate use;
- fire detectors and sprinklers were unobstructed;
- transient material loading was within the analyzed limits; and
- fire doors, dampers, and penetration seals appeared to be in satisfactory condition.

The inspectors also verified that minor issues identified during the inspection were entered into the licensee's CAP. Documents reviewed are listed in the Attachment to this report.

These activities constituted five 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 October 27, 2009, the inspectors observed a fire brigade activation for a simulated oil fire in a control complex chiller pump. 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:

- proper wearing of turnout gear and self-contained breathing apparatus (SCBA);
- proper use and layout of fire hoses;
- employment of appropriate fire fighting techniques;
- sufficient firefighting equipment brought to the scene;
- effectiveness of fire brigade leader communications, command, and control;
- search for victims and propagation of the fire into other plant areas;
- smoke removal operations;
- utilization of pre-planned strategies;
- adherence to the pre-planned drill scenario; and
- drill objectives.

Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors reviewed selected risk-important plant design features and licensee procedures intended to protect the plant and its safety-related equipment from internal flooding events. The inspectors reviewed flood analyses and design documents, including the USAR, engineering calculations, and abnormal operating procedures to identify licensee commitments. The specific documents reviewed are listed in the Attachment to this report. In addition, the inspectors reviewed licensee drawings to identify areas and equipment that may be affected by internal flooding caused by the failure or misalignment of nearby sources of water, such as the fire suppression or the circulating water systems. The inspectors also reviewed the licensee's corrective action documents with respect to past flood-related items identified in the CAP to verify the adequacy of the corrective actions.

The inspectors performed a walkdown of the safety-related equipment areas including HPCS and residual heat removal (RHR) systems to assess the adequacy of watertight doors and verify drains and sumps were clear of debris and were operable, and that the licensee complied with its commitments

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

b. Findings

No findings of significance were identified.

1R07 Annual Heat Sink Performance (71111.07)

a. Inspection Scope

The inspectors reviewed the licensee's testing of the ECC 'A' and Div 1 EDG jacket water cooler heat exchangers to verify that potential deficiencies did not mask the licensee's ability to detect degraded performance, to identify any common cause issues that had the potential to increase risk, and to ensure that the licensee was adequately addressing problems that could result in initiating events that would cause an increase in risk. The inspectors reviewed the licensee's observations as compared against acceptance criteria, the correlation of scheduled testing and the frequency of testing, and the impact of instrument inaccuracies on test results. Inspectors also verified that test acceptance criteria considered differences between test conditions, design conditions, and testing conditions. Documents reviewed for this inspection are listed in the Attachment to this document.

This annual heat sink performance inspection constituted two samples as defined in IP 71111.07-05.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Resident Inspector Quarterly Review (71111.11Q)

a. Inspection Scope

On November 17, 2009, the inspectors observed a crew of licensed operators in the plant's simulator during licensed operator requalification examinations to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems, and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

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

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

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

b. Findings

No findings of significance were identified.

.2 Annual Operating Test Results (71111.11B)

a. Inspection Scope

The inspectors reviewed the overall pass/fail results of the annual Job Performance Measure operating tests and the annual simulator operating tests (required to be given per 10 CFR 55.59(a)(2)) administered by the licensee during the months of November and December 2009 as part of the licensee's operator licensing requalification cycle. These results were compared to the thresholds established in IMC 0609, Appendix I, "Licensed Operator Requalification Significance Determination Process (SDP)." The evaluations were also performed to determine if the licensee effectively implemented

operator requalification guidelines established in NUREG 1021, "Operator Licensing Examination Standards for Power Reactors," and IP 71111.11, "Licensed Operator Requalification Program." The documents reviewed during this inspection are listed in the attachment.

This inspection constituted one biennial inspection sample as defined in Inspection Procedure 71111.11B.

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:

- fire protection system during the week of October 19, 2009;
- emergency closed cooling water during the week of November 30, 2009; and
- control room heating, ventilation and air conditioning (HVAC) and control room emergency recirculation system during the week of December 14, 2009.

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 CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

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

- emergent loss of the diesel fire pump while the electric fire pump was in a failed status on October 12 and 13, 2009;
- risk management and contingencies during Orange shutdown decay heat removal risk with ESW 'B' unavailable on October 19 and 20, 2009;
- loss of ESW 'B' and ECC system train during the week of October 12, 2009;
- emergent risk associated with 'B' recirculation loop flow control valve oscillations on startup from forced outage on November 4, 2009; and
- reactor core isolation cooling (RCIC) outage coincident with electrical work on Division 2 safety bus during the week of December 28, 2009.

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

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

b. Findings

No findings of significance were identified

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- restoring the diesel driven fire pump during the weeks of October 12 and October 19, 2009;
- prompt operability determination and subsequent recovery of ESW 'B' following its trip during a confidence run on October 15, 2009; and
- unexpected results during surveillance to test turbine control valve fast closure circuitry and end-of-cycle recirculation pump trip on November 4, 2009.

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 USAR 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.

These operability inspections constituted three samples as defined in IP 71111.15-05.

b. Findings

Introduction: A Green finding (FIN) of very low safety significance was self-revealed when one of two reactor recirculation pumps failed to shift to slow speed while operators were downshifting both pumps. In 2007, a worker failed to adhere to contactor assembly instructions during cleaning and inspection of a low frequency motor generator (LFMG) relay panel. The improperly assembled contactor led to the loss of the reactor recirculation pump during a failed attempt to shift from fast to slow speed.

Description: On October 15, 2009, the licensee was in the process of shutting the plant down to repair train 'B' of the ESW system. At 10:41 p.m., when power had been reduced to approximately 40 percent, operators attempted to downshift reactor recirculation pumps 'A' and 'B' from fast to slow speed. During the downshift, reactor recirculation pump 'B' successfully transferred to slow speed, but reactor recirculation pump 'A,' while successfully de-energizing from the fast speed setting, failed to re-energize in slow speed. The LFMG 'A' output breaker, which closes to allow the LFMG to supply slow speed power to reactor recirculation pump 'A,' failed to close when the pump lowered to the appropriate speed. Following a short time delay, LFMG 'A' was automatically tripped due to the lack of output breaker closure.

The reactor recirculation pump trip caused an immediate drop in power, and a subsequent isolation of feedwater heater # 4. Operators responded by maximizing remaining recirculation flow to the reactor and entering Off-Normal Instruction (ONI)-C51, "Unplanned Change in Reactor Power or Reactivity" and ONI-N36 "Loss of Feedwater Heating." Additionally, the licensee entered TS 3.4.1 "Recirculation Loops Operating" when recirculation flow differential between the 'A' and 'B' loops exceeded 10 percent following the 'A' pump trip. Eventually, power stabilized at 30 percent.

As a result of the event, the plant was outside the bounds of the reactivity plan that had been prepared for the planned shutdown. Rather than revising the existing reactivity plan, the operating crew made the conservative decision to manually scram the reactor at 12:48 a.m. on October 16, 2009.

The licensee's investigation into the cause of the reactor recirculation pump 'A' failure to start in slow speed determined that a contactor in one of the LFMG 'A' relay panels had been assembled incorrectly. Specifically, the retaining clip for a contactor terminal on relay K131A was not properly seated on the detent of the contactor coil. Testing determined that because the retaining clip was not properly seated, when the contactor was energized and de-energized, the resulting movement of the retaining clip would sometimes cause a loss of electrical continuity to the coil. In the cases where electrical continuity was lost, the result was a loss of input source power to the LFMG voltage regulator due to the K131A contactor failing to operate. When this occurred during the October 15, 2009 event, the result was the failure of the LFMG 'A' output breaker to close, which prevented recirculation pump 'A' from transferring to slow speed.

The licensee determined that the improper assembly of the contactor occurred during an April 2007 maintenance activity where the K131A contactor was disassembled and the relay coils were inspected. The incorrect reassembly failed to ensure that electrical continuity of the contactor would be maintained during operation.

The licensee's Nuclear Operating Procedure (NOP)-WM-4300, "Order Execute Process," Revision 8, states in 4.8.3 "Perform work activities as specified in the Order operations (steps)." Contrary to this standard, licensee personnel did not correctly utilize the vendor instructions, as specified in the WO, to reassemble an LFMG relay contactor. Specifically, the vendor instructions for disassembly of the contactor, stated in step 2, that personnel should "press against coil while pulling up slightly on coil retainers (A-Figure 1) and move retainers away from coil," and for reassembly, step 6 stated "reassemble device by reversing procedure." However, licensee personnel failed to follow vendor instructions to ensure that the coil retainer and coil were properly engaged. The resulting configuration failed to provide assurance that electrical continuity would be maintained, and led to the October 15, 2009, failure of reactor recirculation pump 'A' to start in slow speed when required.

Analysis: The inspectors determined that the failure of licensee personnel to adhere to maintenance instructions was a performance deficiency warranting a significance evaluation in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening," issued on December 4, 2008. The inspectors determined that the finding was more than minor because it was associated with the equipment performance attributes of availability and reliability of the initiating events cornerstone and adversely affected the cornerstone objective of limiting the likelihood of events that upset plant stability. Specifically, the finding resulted in an unexpected loss of one of the two reactor recirculation pumps which directly affected core reactivity, entrance into ONIs, and a challenge to operators during a plant shutdown.

The inspectors performed a significance determination of this issue using IMC 0609, "Significance Determination Process," dated August 5, 2008, and IMC 0609.04, "Initial Screening and Characterization of Findings," dated January 10, 2008. The issue screened as a transient initiator contributor. The finding was of very low safety significance because the finding did not result in exceeding the TS limit for identified reactor coolant system (RCS) leakage and did not affect other mitigation systems; the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available; and the finding did not increase the likelihood of a fire or internal/external flood. The finding had a cross-cutting aspect in

the area of human performance, per IMC 0305 H.4.a, work practices, human error prevention techniques, because the licensee did not ensure that appropriate human error prevention techniques were used. Specifically, licensee personnel did not utilize self- and peer-checking techniques to ensure that the component was reassembled properly during maintenance activities.

Enforcement: The inspectors determined that no violation of regulatory requirements occurred because the reactor recirculation system is not a safety-related system covered by 10 CFR Part 50, Appendix B. As part of their corrective actions, the licensee established a team to troubleshoot the LFMG issues, and subsequently replaced the contactor component that was determined to be the cause of the failure. The licensee entered this issue into their CAP as CR 09-66058, and subsequently performed a root cause evaluation. (FIN 05000440/2009005-01)

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:

- Breaker EF1A03 re-installation and retest during the week of October 1, 2009;
- Division 2 diesel generator CO₂ systems detection/operability test on October 16, 2009;
- reactor recirculation pump 'A' post-maintenance test per simple troubleshooting template, Order # 200391136, October 21, 2009;
- diesel driven fire pump post-maintenance tests on October 13 and 15, 2009;
- ESW 'A' confidence run and ESW 'A' ventilation fan post-maintenance test on October 14, 2009;
- Jockey Fire water pump post-installation test on October 18, 2009;
- ESW 'B' breaker post-maintenance test on October 28, 2009;
- Scram time testing following hydraulic control unit accumulator replacement on November 3, 2009;
- Transformer EH-1-D installation and voltage and temperature tests on December 28, 2009;
- Breaker EH1110 RHR 'A' testing on December 2, 2009.

These activities were selected based upon the structure, system, and 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 USAR, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In

addition, the inspectors reviewed corrective action documents associated with post-maintenance tests to determine whether the licensee was identifying problems and entering them in the CAP and that the problems were being corrected commensurate with their importance to safety. Documents reviewed are listed in the Attachment to this report.

These inspections constituted ten post-maintenance testing samples as defined in IP 71111.19-05.

b. Findings

No findings of significance were identified.

1R20 Forced Outage Activities (71111.20)

a. Inspection Scope

The inspectors evaluated outage activities for a forced outage that began on October 16, 2009, and continued through November 6, 2009. The inspectors reviewed activities to ensure that the licensee considered risk in developing, planning, and implementing the outage schedule.

The inspectors observed or reviewed the reactor shutdown and cooldown, outage equipment configuration and risk management, electrical lineups, selected clearances, control and monitoring of decay heat removal, control of containment activities, startup and heatup activities, and identification and resolution of problems associated with the outage. The forced outage was a result of a shutdown TS action statement entry. The TS entry was made as a result of the trip and subsequent unavailability of ESW 'B' pump.

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

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

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

- automatic depressurization system (ADS)/low pressure core spray (LPCS) pump high discharge pressure channel routine calibration testing on October 7, 2009;
- turbine stop valve closure and turbine control valve fast closure routine functional test on November 4, 2009;
- rod pattern control system low power setpoint channel A routine calibration;
- main steam line high temperature routine functional test;

- RCIC waterleg pumps routine operability test;
- Div 1 EDG monthly routine operability test on December 3, 2009;
- control complex chilled water 'B' pump and valve inservice test on December 16, 2009;

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 TS, the USAR, procedures, and applicable commitments;
- measuring and test equipment calibration was current;
- test equipment was used within the required range and accuracy and applicable prerequisites described in the test procedures were satisfied;
- test frequencies met TS requirements to demonstrate operability and reliability and tests were performed in accordance with the test procedures and other applicable procedures and 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 in-service testing activities, testing was performed in accordance with the applicable version of Section XI, American Society of Mechanical Engineers (ASME) code, and reference values were consistent with the system design basis;
- where applicable, test results not meeting acceptance criteria were addressed with an adequate operability evaluation or the system or component was declared inoperable;
- where applicable for safety-related instrument control surveillance tests, reference setting data were accurately incorporated in the test procedure;
- where applicable, actual conditions encountering high resistance electrical contacts were such that the intended safety function could still be accomplished;
- prior procedure changes had not provided an opportunity to identify problems encountered during the performance of the surveillance or calibration test;
- equipment was returned to a position or status required to support the performance of its safety functions; and
- all problems identified during the testing were appropriately documented and dispositioned in the CAP.

Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System Evaluation (71114.02)

a. Inspection Scope

The inspectors held discussions with Emergency Preparedness (EP) staff regarding the operation, maintenance, and periodic testing of the Alert and Notification System (ANS) in the Perry Nuclear Power Plant's plume pathway emergency planning zone. The inspectors reviewed monthly trend reports and siren test failure records from October 2007 through October 2009. Information gathered during document reviews and interviews was used to determine whether the ANS equipment was maintained and tested in accordance with Emergency Plan commitments and procedures. Additionally, the inspectors observed a weekly siren test conducted from Lake County dispatch center to verify the test was conducted in accordance with the approved procedure. Documents reviewed are listed in the Attachment to this report.

This ANS inspection constituted one sample as defined in IP 71114.02-05.

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization Augmentation Testing (71114.03)

a. Inspection Scope

The inspectors reviewed and discussed with plant EP staff the emergency plan commitments and procedures that addressed the primary and alternate methods of initiating an Emergency Response Organization (ERO) activation to augment the on-shift ERO as well as the provisions for maintaining the ERO emergency telephone book. The inspectors also reviewed reports and a sample of corrective action program records of unannounced off-hour augmentation tests, which were conducted from October 2007 through October 2009, to determine the adequacy of post-drill critiques and associated corrective actions. The inspectors reviewed the EP training records of a sample of approximately 31 ERO personnel assigned to key and support positions to determine the status of their ERO position training. Documents reviewed are listed in the Attachment to this report.

This ERO augmentation testing inspection constituted one sample as defined in IP 71114.03-05.

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

a. Inspection Scope

The inspectors conducted a review of the emergency action level changes and sampled the revisions to the emergency plan to evaluate whether the changes identified in the revisions may have decreased the effectiveness of the emergency plan. The inspection included a review of the 10 CFR 50.54(q) change process documentation. The inspectors reviewed the changes made to the emergency plan that were implemented based on the licensee's determination the changes resulted in no decrease in effectiveness of the emergency plan and the revised plan continued to meet the requirements of 10 CFR 50.47(b) and Appendix E to 10 CFR Part 50. The NRC review of the revisions does not constitute formal approval of the changes; therefore, the emergency action level and emergency plan changes remain subject to future NRC inspection in their entirety. Documents reviewed are listed in the Attachment.

This emergency action level and emergency plan changes inspection constituted one sample as defined in IP 71114.04-05.

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies (71114.05)

a. Inspection Scope

The inspectors reviewed a sample of Fleet Oversight staff's 2007 and 2008 audits of the Perry Nuclear Power Plant EP program to determine that these independent assessments met the requirements of 10 CFR 50.54(t). The inspectors also reviewed critique reports and samples of corrective action program records associated with the 2008 biennial exercise, as well as various EP drills conducted in 2008 and 2009, in order to determine that the licensee fulfilled its drill commitments and to evaluate the licensee's efforts to identify, track, and resolve concerns identified during these activities. Additionally, the inspectors reviewed a sample of EP items and corrective actions related to the facility's EP program and activities to determine whether corrective actions were completed in accordance with the site's CAP. Documents reviewed are listed in the Attachment to this report.

This correction of emergency preparedness weaknesses and deficiencies inspection constituted one sample as defined in IP 71114.05-05.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on October 6, 2009, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the control room (simulator), the technical support center, and the emergency operations facility, to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the CAP. As part of the inspection, the inspectors reviewed the drill package and other documents listed in the attachment.

These activities constitute completion of 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)

High Risk-Significant, High Dose Rate, High Radiation Area, and Very High Radiation Area Controls

a. Inspection Scope

The inspectors conducted plant walkdowns to assess the posting and locking of entrances to high dose rate high radiation areas and very high radiation areas.

This inspection supplements a sample previously documented in Inspection Report (IR) 05000440/2009003.

b. Findings

Introduction: A finding of very low safety significance and an associated NCV of TS 5.7.1 was identified by the inspectors when a reactor engineer inadvertently pulled two Traversing In-Core Probes (TIPs) back to the in-shield position, thereby creating an unposted high radiation area in accessible areas of the containment building.

Description: On May 17, 2009, a reactor engineer operated the plant TIP system in order to collect data to support calibration of in-core local power range monitoring instrumentation. The reactor engineer intended to withdraw the TIPS out of the core and place them at the TIP indexer. If performed as intended, this action should have

maintained the TIPs and the associated TIP cabling within the drywell, which is a posted and controlled very high radiation area. However, in the process of withdrawing the TIPs, the reactor engineer was distracted from his primary task and inadvertently withdrew the TIPs fully back to their in-shield position. As a result, the TIP cabling was retracted to the cable take-up wheel in the drive motor machine in the containment building on elevation 599'. This created ambient radiation levels in accessible areas of the containment building of 11,500 mrem /hr for a short duration, and caused the area radiation monitor (ARM) near the drive motor machines to alarm. The ARM is located in the vicinity of the drive motors and alarms in the main control room. This ARM went into high alarm once the TIP cables were retracted back into the drive motor machines. No individuals were present in the unposted high radiation area. Once the reactor engineer was alerted to the elevated radiation levels in the vicinity of the drive motor machines by operations shortly after the ARM alarmed, he immediately began to drive the TIPs forward into the drywell to their desired location at the TIP indexer. Driving the TIPs from the in-shield location to the TIP indexer location is sufficient to move the activated TIP cabling off of the drive motor machine take-up wheel into the drywell, thereby eliminating the source of radiation from the containment building. As a result of those actions, the elevated dose rate condition existed for approximately 4 minutes.

Analysis: The inspectors determined that the inappropriate movement of the TIP cables to the take-up wheels in the drive motor machines created an unposted high radiation area in the containment building. This was determined to be a performance deficiency in that the licensee failed to meet the requirements for posting and control of access to high radiation areas. Additionally, this activity was within the licensee's ability to foresee and should have been prevented, in that, it is well documented in industry operating experience that TIP cabling is likely to become highly irradiated and that TIPs have been retracted back to the take-up wheels in the drive machines.

The finding was not subject to traditional enforcement since the incident did not have a significant or potentially significant safety consequence, did not impact the NRC's ability to perform its regulatory function, and was not willful. The inspectors determined that the finding was more than minor in accordance with IMC 0612 "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening." Specifically, the finding was more than minor because it impacted the Occupational Radiation Safety Cornerstone objective for ensuring adequate protection of worker health and safety from exposure to radiation in the attribute of program and process for ALARA planning, in that, not conspicuously posting high radiation areas may result in unnecessary and unplanned radiation exposures to workers. The primary cause of this finding was related to the cross-cutting area of human performance per IMC 0305 H.4.a, in work practices, in that, personnel work practices and human performance error reduction techniques were not used commensurate with the risk of the assigned task.

Since the finding involved occupational radiation safety associated with radiological posting and access control of high radiation areas, the inspectors utilized IMC 0609, Appendix C, "Occupational Radiation Safety SDP," to assess its significance. The inspectors determined that the finding did not involve ALARA planning or work controls. Given the brief duration (approximately 4 minutes) of the elevated dose rate condition, there was no overexposure or substantial potential for an overexposure, nor was the licensee's ability to assess worker dose compromised. The licensee conservatively calculated a bounding dose of 766 mrem had an individual been present in the area.

Consequently, the inspectors determined that the finding was of very low safety significance.

Enforcement: Technical Specification 5.7.1 defines a high radiation area as an area that has dose rates greater than 100 mrem/hr, and states in part, that high radiation areas shall be conspicuously posted. Contrary to the above, on May 17, 2009, the inappropriate movement of the TIP cables to the take-up wheels in the drive motor machines created an unposted high radiation area in the containment building. Since the licensee documented this issue in its CAP (CR 09-59344 and CR 09-67987) and because the issue is of very low safety significance, it is being treated as a NCV consistent with Section VI.A.1 of the NRC Enforcement Policy. (NCV 05000440/2009005-02)

Corrective actions taken by the licensee included coaching the individuals involved, improving the radiological controls associated with the TIP system drive machine area when TIP movements are in progress.

2OS3 Radiation Monitoring Instrumentation and Protective Equipment (71121.03)

.1 Inspection Planning and Identification of Instrumentation

a. Inspection Scope

The inspectors reviewed the licensee's Updated Final Safety Analysis Report (UFSAR) to identify applicable radiation monitors associated with measuring transient high and very high radiation areas, including those intended for remote emergency assessment. The inspectors identified the types of portable radiation detection instrumentation that were used for job coverage of high radiation area work, including instruments for underwater surveys, portable and fixed ARMs that were used to provide radiological information in various plant areas, and continuous air monitors that were used to assess airborne radiological conditions and work areas with the potential for workers to receive a 50 millirem or greater committed effective dose equivalent (CEDE). Whole body counters that were used to monitor for internal exposure and those radiation detection instruments that were used to conduct surveys for the release of personnel and equipment from the radiologically controlled area (RCA), including contamination monitors and portal monitors, were also identified.

This inspection constituted two samples as defined in IP 71121.03-5.

b. Findings

No findings of significance were identified.

.2 Calibration and Testing of Radiation Monitoring Instrumentation

a. Inspection Scope

The inspectors reviewed radiological instrumentation to determine if it had been calibrated as required by the licensee's procedures, consistent with industry and regulatory standards. The inspectors also reviewed alarm setpoints for selected instruments to determine whether they were established consistent with the UFSAR

or TS, as applicable, and with industry practices and regulatory guidance. Specifically, the inspectors reviewed calibration procedures and the most recent calibration records for the following radiation monitoring instrumentation and calibration equipment:

- containment high range ARMs;
- drywell high range ARMs;
- main control room;
- TIP room ARM;
- in-plant ARMs;
- small article monitors used at plant egress points;
- portable survey instruments used for underwater surveys;
- whole body counter; and
- personnel contamination monitors used at the egress points.

The inspectors determined what actions were taken when, during calibration or source checks, an instrument was found significantly out of calibration or exceeded as-found acceptance criteria. Should that occur, the inspectors determined whether the licensee's actions would include a determination of the instrument's previous uses and the possible consequences of that use since the prior successful calibration. The inspectors also reviewed the results of the licensee's most recent 10 CFR Part 61 source term (radionuclide mix) evaluations to determine if the radiation sources that were used for instrument calibration and for instrument checks were representative of the plant source term.

The inspectors observed the licensee's use of the portable survey instrument calibration units, discussed calibrator output validation methods, and compared calibrator exposed readings with calculated/expected values. The inspectors evaluated compliance with licensee procedures while radiation protection personnel demonstrated the methods for performing source checks of portable survey instruments and source checks of personnel contamination and portal monitors.

This inspection constituted one sample as defined in IP 71121.03-5.

b. Findings

No findings of significance were identified.

.3 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed licensee CAP documents and any Licensee Event Reports (LERs) or special reports that involved personnel contamination monitor alarms due to personnel internal exposures to determine whether identified problems were entered into the CAP for resolution.

While no internal exposure with a CEDE greater than 50 millirem occurred since the last inspection in this area, the inspectors reviewed the licensee's methods for internal dose assessment to determine if affected personnel would be properly monitored using calibrated equipment and if the data would be analyzed and exposures properly assessed.

This inspection constituted one sample as defined in IP 71121.03-5.

The inspectors reviewed CAP reports related to exposure-significant radiological incidents that involved radiation monitoring instrument deficiencies since the last inspection in this area, as applicable. Members of the radiation protection staff were interviewed and corrective action documents were reviewed to determine whether 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;
- resolution of NCVs tracked in the corrective action system; and
- identification and implementation of effective corrective actions.

This inspection constituted one sample as defined in IP 71121.03-5.

The inspectors determined if the licensee's self-assessment and audit activities completed for the approximate 2-year period that preceded the inspection were identifying and addressing repetitive deficiencies or significant individual deficiencies in problem identification and resolution, as applicable.

This inspection constituted one sample as defined in IP 71121.03-5.

b. Findings

No findings of significance were identified.

.4 Radiation Protection Technician Instrument Use

a. Inspection Scope

The inspectors verified that calibrations for those survey instruments used to perform job coverage surveys and for those currently designated for use had not lapsed. The inspectors determined if response checks of portable survey instruments and checks of instruments used for unconditional release of materials and workers from the RCA were completed prior to instrument use, as required by the licensee's procedure. The inspectors also discussed instrument calibration methods and source response check practices with radiation protection staff and observed staff demonstrate instrument source checks.

This inspection constituted one sample as defined in IP 71121.03-5.

b. Findings

No findings of significance were identified.

.5 Self-Contained Breathing Apparatus Maintenance/Inspection and Emergency Response Staff Qualifications

a. Inspection Scope

The inspectors reviewed the status and surveillance records of SCBAs that were staged in the plant and ready for use and evaluated the licensee's capabilities for refilling and transporting SCBA air bottles to and from the control room and operations support center during emergency conditions. The inspectors determined if control room staff and other emergency response and radiation protection personnel were trained, respirator fit-tested, and medically certified to use SCBAs, including personal bottle change out. Additionally, the inspectors reviewed SCBA qualification records for numerous members of the licensee's radiological emergency teams to determine if a sufficient number of staff were qualified to fulfill emergency response positions, consistent with the licensee's emergency plan and the requirements of 10 CFR 50.47.

This inspection constituted one sample as defined in IP 71121.03-5.

The inspectors reviewed the qualification documentation for at least 50 percent of the onsite, or as applicable, offsite contract personnel that performed maintenance on manufacturer designated vital SCBA components. The inspectors also reviewed vital component maintenance records for several SCBA units that were designated as ready-for-use. The inspectors also evaluated, through record review and observations, if the required air cylinder hydrostatic testing was documented and current and if the required Department of Transportation retest air cylinder markings were in place for several randomly selected SCBA units and spare air bottles. The inspectors reviewed the onsite maintenance procedures governing vital component work, as applicable, including those for the low-pressure alarm and pressure-demand air regulator. The inspectors reviewed the licensee's maintenance procedures and the SCBA manufacturer's recommended practices to determine if there were any inconsistencies between them.

This inspection constituted one sample as defined in IP 71121.03-5.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (71122.01)

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed the configuration of the licensee's gaseous and liquid effluent processing systems to confirm that radiological discharges were properly mitigated, monitored, and evaluated with respect to public exposure. The inspectors reviewed the performance requirements contained in General Design Criteria 60 and 64 of Appendix A to 10 CFR Part 50 and in the licensee's Radiological Effluent Technical

Specifications (RETS) and Offsite Dose Calculation Manual (ODCM). The inspectors also reviewed any abnormal radioactive gaseous or liquid discharges and any conditions since the last inspection when effluent radiation monitors were out-of-service to verify that the required compensatory measures were implemented. Additionally, the inspectors reviewed the licensee's quality control program to verify that the radioactive effluent sampling and analysis requirements were satisfied and that discharges of radioactive materials were adequately quantified and evaluated.

The inspectors reviewed each of the radiological effluent controls program requirements to verify that the requirements were implemented as described in the licensee's RETS. For selected system modification (since the last inspection), the inspectors reviewed changes to the liquid or gaseous radioactive waste system design, procedures, or operation, as described in the UFSAR and plant procedures.

The inspectors reviewed changes to the ODCM made by the licensee since the last inspection to ensure consistency was maintained with respect to guidance in NUREGs-1301, 1302 and 0133, and Regulatory Guides 1.109, 1.21 and 4.1. If differences were identified, the inspectors reviewed the licensee's technical basis or evaluations to verify that the changes were technically justified and documented.

The inspectors reviewed the radiological effluent release reports for 2007 and 2008 in order to determine if anomalous or unexpected results were identified by the licensee, entered in the CAP, and adequately resolved.

The inspectors reviewed any significant changes in reported dose values from the previous radiological effluent release report, and the inspectors evaluated the factors which may have resulted in the change. If the change was not explained as being influenced by an operational issue (e.g., fuel integrity, extended outage, or major decontamination efforts), the inspectors independently assessed the licensee's offsite dose calculations to verify that the licensee's calculations were adequately performed and were consistent with regulatory requirements.

The inspectors reviewed the licensee's correlation between the effluent release reports and the environmental monitoring results, as provided in Section IV.B.2 of Appendix I to 10 CFR Part 50.

This inspection constituted one sample as defined by IP 71122.01-5.

b. Findings

No findings of significance were identified.

.2 Onsite Inspection

a. Inspection Scope

The inspectors performed a walkdown of selected components of the gaseous and liquid discharge systems (e.g., gas compressors, demineralizers and filters -- in use or in standby -- tanks, and vessels) and reviewed current system configuration with respect to the description in the USAR. The inspectors evaluated temporary waste processing activities, system modifications, and the equipment material condition. For equipment or

areas that were not readily accessible, the inspectors reviewed the licensee's material condition surveillance records, as applicable. The inspectors reviewed any changes that were made to the liquid or gaseous waste systems to verify that the licensee adequately evaluated the changes and maintained effluent releases ALARA.

During system walkdowns, the inspectors assessed the operability of selected point of discharge effluent radiation monitoring instruments and flow measurement devices. The effluent radiation monitor alarm set-point values were reviewed to verify that the set-points were consistent with RETS/ODCM requirements.

For effluent monitoring instrumentation, the inspectors reviewed documentation to verify the adequacy of methods and monitoring of effluents, including any changes to effluent radiation monitor set-points. The inspectors evaluated the calculation methodology and the basis for the changes to verify the adequacy of the licensee's justification.

The inspectors observed the licensee's sampling of liquid and gaseous radioactive waste (e.g., sampling of waste steams) and observed selected portions of the routine processing and discharge of radioactive effluents if those activities occurred during the onsite inspection. Additionally, the inspectors reviewed several radioactive effluent discharge permits, assessed whether the appropriate treatment equipment was used and whether the radioactive effluent was processed and discharged in accordance with RETS/ODCM requirements, including the projected doses to members of the public.

The inspectors interviewed staff concerning effluent discharges made with inoperable (declared out-of-service) effluent radiation monitors to determine if appropriate compensatory sampling and radiological analyses were conducted at the frequency specified in the RETS/ODCM. For compensatory sampling methods, the inspectors reviewed the licensee's practices to determine if representative samples were obtained and if the licensee routinely relied on the use of compensatory sampling in lieu of adequate system maintenance or calibration of effluent monitors.

The inspectors reviewed surveillance test results for non-safety-related ventilation and gaseous discharge systems (high efficiency particulate air (HEPA) and charcoal filtration) to verify that the systems were operating within the specified acceptance criteria. In addition, the inspectors assessed the methodology the licensee used to determine the stack/vent flow rates to verify that the flow rates were consistent with the RETS/ODCM.

The inspectors reviewed the licensee's program for identifying any normally non-radioactive systems that may have become radioactively contaminated to determine if evaluations (e.g., 10 CFR 50.59 evaluations) were performed per Office of Inspection and Enforcement Bulletin 80-10. The inspectors did not identify any unidentified contaminated systems that may have been unmonitored discharge pathways to the environment.

The inspectors reviewed instrument maintenance and calibration records (i.e., both installed and counting room equipment) associated with effluent monitoring and reviewed quality control records for the radiation measurement instruments. The inspectors performed this review to identify any degraded equipment performance and to assess corrective actions, as applicable.

The inspectors reviewed the radionuclides that were included by the licensee in its effluent source term to determine if all applicable radionuclides were included (within detectability standards) in the licensee's evaluation of effluents. The inspectors reviewed waste stream analyses (10 CFR Part 61 analyses) to determine if hard-to-detect radionuclides were also included in the source term analysis.

The inspectors reviewed a selection of monthly, quarterly, and annual dose calculations to ensure that the licensee had properly demonstrated compliance with 10 CFR Part 50, Appendix I, and RETS dose criteria.

The inspectors reviewed licensee records to identify any abnormal gaseous or liquid tank discharges (e.g., discharges resulting from misaligned valves, valve leak-by, etc) to determine if the licensee had implemented the required actions. The inspectors determined if abnormal discharges were assessed and reported as part of the Annual Radioactive Effluent Release Report consistent with Regulatory Guide 1.21.

The inspectors reviewed the licensee's effluent sampling records (sampling locations, sample analyses results, flow rates, and source term) for radioactive liquid and gaseous effluents to verify that the licensee's information satisfied the requirements of 10 CFR 20.1501.

This inspection constituted one sample as defined by IP 71122.01-5.

b. Findings

No findings of significance were identified.

.3 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed the licensee's self-assessments, audits, LERs, and special reports related to the radioactive effluent treatment and monitoring program since the last inspection to determine if identified problems were entered into the CAP for resolution. The inspectors also assessed whether the licensee's self-assessment program was capable of identifying repetitive deficiencies or significant individual deficiencies in problem identification and resolution.

The inspectors reviewed corrective action reports from the radioactive effluent treatment and monitoring program since the previous inspection, interviewed staff, and reviewed documents to determine if the following activities were conducted in an effective and timely manner commensurate with their importance to safety and risk:

- 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;

- implementation/consideration of risk-significant operational experience feedback; and
- ensuring problems were identified, characterized, prioritized, entered into a corrective action, and resolved.

This inspection constituted one sample as defined by IP 71122.01-5.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Mitigating Systems Performance Index - Emergency AC Power System

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI) - Emergency AC Power System Performance Indicator (PI) 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," Revisions 5 and 6, were used. The inspectors reviewed the licensee's operator narrative logs, MSPI derivation reports, issue reports, event reports, and NRC Integrated IRs for the period of the third quarter 2008 through the second quarter 2009 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. 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.

.2 Mitigating Systems Performance Index - High Pressure Injection Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - High Pressure Injection Systems PI 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 NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revisions 5 and 6, were used. The inspectors

reviewed the licensee's operator narrative logs, issue reports, MSPI derivation reports, event reports, and NRC Integrated IRs for the period of the third quarter 2008 through the second quarter 2009 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. 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 high pressure injection system sample as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

.3 Mitigating Systems Performance Index - Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - Heat Removal System PI for the period from the fourth 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 NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revisions 5 and 6, were used. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports, MSPI derivation reports, and NRC Integrated IRs for the period of the fourth quarter 2008 through the second quarter 2009 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. 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 heat removal system sample as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

.4 Mitigating Systems Performance Index - Residual Heat Removal System

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - Residual Heat Removal System PI for the period from the fourth 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 NEI Document 99-02, "Regulatory Assessment Performance

Indicator Guideline,” Revisions 5 and 6, were used. The inspectors reviewed the licensee’s operator narrative logs, issue reports, MSPI derivation reports, event reports, and NRC Integrated IRs for the period of the fourth quarter 2008 through the second quarter 2009 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee’s issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

.5 Mitigating Systems Performance Index - Cooling Water Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the MSPI - Cooling Water Systems PI 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 NEI Document 99-02, “Regulatory Assessment Performance Indicator Guideline,” Revisions 5 and 6, were used. The inspectors reviewed the licensee’s operator narrative logs, issue reports, MSPI derivation reports, event reports, and NRC Integrated IRs for the period of the third quarter 2008 through the second quarter 2009 to validate the accuracy of the submittals. The inspectors reviewed the MSPI component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee’s issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one MSPI cooling water system sample as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

.6 Drill/Exercise Performance

a. Inspection Scope

The inspectors sampled the licensee’s PI submittals for Drill/Exercise Performance for the period from the third quarter 2008 through third quarter 2009. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance were

used as contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5. The inspectors verified the accuracy of the number of reported drill and exercise opportunities and the licensee's critiques and assessments for timeliness and accuracy of the opportunities. The inspectors reviewed the licensee's documentation for control room simulator training sessions, the 2008 biennial exercise, and other designated drills to validate the accuracy of the submittals. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one drill/exercise performance sample as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

.7 Emergency Response Organization Drill Participation

a. Inspection Scope

The inspectors sampled licensee submittals for the ERO Drill Participation PI for the period from the third quarter 2008 through the third quarter 2009. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance were used as contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5. The inspectors reviewed the licensee's records and ERO roster to validate the accuracy of the submittals for the number of ERO members assigned to fill key positions and the percentage of ERO members who had participated in a performance enhancing drill or exercise. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one ERO drill participation sample as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

.8 Alert and Notification System

a. Inspection Scope

The inspectors sampled the licensee submittals for the ANS PI for the period from the third quarter 2008 through third quarter 2009. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance were used as contained in the NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5. The inspectors reviewed the records of the licensee's reported number of successful siren operability tests and the number of siren tests conducted during the reporting period to validate the accuracy of the submittals. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one alert and notification system sample as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

.9 Reactor Coolant System Specific Activity

a. Inspection Scope

The inspectors sampled licensee submittals for the RCS Specific Activity PI for the period from the third quarter 2008 through third quarter 2009. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revisions 5 and 6 were used. The inspectors reviewed the licensee's RCS chemistry samples, TS requirements, issue reports, event reports, and NRC Integrated IRs for the period of third quarter 2008 through third quarter 2009 to validate the accuracy of the submittals. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the PI data collected or transmitted for this indicator and none were identified. In addition to record reviews, the inspectors observed a chemistry technician obtain and analyze a RCS sample. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one RCS specific activity sample as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

.10 RETS/ODCM Radiological Effluent Occurrences

a. Inspection Scope

The inspectors sampled licensee submittals for RETS/ODCM Radiological Effluent Occurrences PI for the period of May 2008 through October 2009. The inspectors used PI definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revisions 5 and 6 to determine the accuracy of the PI data reported during those periods. The inspectors reviewed the licensee's issue report database and selected individual reports generated since this indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose. The inspectors reviewed gaseous effluent summary data and the results of associated offsite dose calculations for selected dates between May 2008 and October 2009 to determine if indicator results were accurately reported. The inspectors also reviewed the licensee's methods for quantifying gaseous and liquid effluents and determining effluent dose. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one RETS/ODCM radiological effluent occurrences sample as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

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

.1 Routine Review of Items Entered Into the CAP

a. Inspection Scope

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

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

b. Findings

No findings of significance were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's CAP. This review was accomplished through inspection of the station's daily CR 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 Annual Sample: Review of Operator Workarounds

a. Inspection Scope

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

The inspectors performed a review of the cumulative effects of OWAs. The documents listed in the Attachment were reviewed to accomplish the objectives of the IP. The inspectors reviewed both current and historical operational challenge records to determine whether the licensee was identifying operator challenges at an appropriate threshold, had entered them into their CAP and proposed or implemented appropriate and timely corrective actions which addressed each issue. Reviews were conducted to determine if any operator challenge could increase the possibility of an initiating event, if the challenge was contrary to training, required a change from long-standing operational practices, or created the potential for inappropriate compensatory actions. Additionally, workarounds were reviewed to identify any potential effect on the functionality of mitigating systems, impaired access to equipment, or required equipment uses for which the equipment was not designed. Daily plant and equipment status logs, degraded instrument logs, and operator aids or tools being used to compensate for material deficiencies were also assessed to identify any potential sources of unidentified OWAs.

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

b. Findings

No findings of significance were identified.

.4 Selected Issue Follow-Up Inspection: Upper Containment Airlock Operability

a. Inspection Scope

The inspectors reviewed the licensee's actions taken to resolve a recurring condition initially reported in CR 08-49960. This CR identified an issue with an interlock mechanism that could allow both upper containment airlocks to be open at the same time. The problem manifested itself during the performance of a routine surveillance and the cause was determined to be a loose set screw on a rocker arm that would normally engage an interlock to prevent both doors from being open at the same time. The airlock has continued to exhibit failures during routine testing and the need for periodic repairs and as such, the inspectors conducted a review of current efforts by the licensee to maintain functionality of the airlock.

The inspectors reviewed the licensee's recent actions on the airlock and the periodicity of recent system functional challenges. No deficiencies were noted in the way that the licensee was maintaining the airlock system.

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

b. Findings

No findings of significance were identified.

.5 Selected Issue Follow-Up Inspection: Human Performance Recovery Plan Review

a. Inspection Scope

The inspectors reviewed the licensee's implementation of their human performance recovery plan instituted as a result of the assignment of a significant cross-cutting aspect in human performance. The inspectors evaluated the execution of the plan in place and the changes proposed for the coming year. A review of recent actions taken by the licensee to increase human performance awareness of the work force and the effort to instill new approaches in the methods employed by the work force to prevent human performance errors was examined. Interviews were conducted with operations section human performance representatives to assess the development of that portion of the recovery plan. A review was conducted of corrective actions associated with human performance events to validate that the actions taken were consistent with the licensee's stated policies and procedures.

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

b. Findings

No findings of significance were identified.

.6 Selected Issue Follow-Up Inspection: Reportability of Shutdown Cooling Loss During RFO12 as a Safety System Functional Failure

a. Inspection Scope

The inspectors conducted a follow-up review of a loss of all RHR shutdown cooling during the outage on April 27, 2009. The fundamental cause of the loss was a maintenance error. This review determined that the failure which caused isolation of the suction to both trains of RHR was a reportable safety system functional failure and applicable to the PI. This event was initially reported by the licensee at the time of the event but later retracted. Because this event was not submitted by the licensee but previously reviewed by the NRC without any comment, the issue is being treated as an unresolved item (URI) until further review is completed. The item was entered into the corrective action program as CR 10-69589.

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

b. Findings

Introduction: A maintenance error during the spring 2009 refueling outage, while the reactor was in Mode 4, caused a loss of all RHR system capabilities. The licensee initially classified the event as reportable and made the phone report. The licensee determined later that it was not reportable and retracted the initial report. The failure to report a safety system function failure caused by a maintenance error is considered a URI pending a review by the licensee's staff and the inspectors.

Description: On April 27, 2009, during a refueling outage, work which involved installing a jumper for testing caused a fuse to blow which resulted in the RHR common suction isolation valve failing closed, thereby tripping the running 'A' RHR pump. This also made the 'B' RHR system unavailable. The event was reported by the licensee in accordance with 10 CFR 50.72(b)(3)(v)(B) as an event or condition at the time of discovery that could prevent the fulfillment of the safety function needed to remove residual heat. The licensee later retracted the event based on their onsite analysis of the event. The licensee initiated a corrective action to investigate the decision to retract the event report. Pending further review of the licensee's evaluation and supporting documentation by the NRC staff to determine if this performance deficiency constitutes a failure to report a safety system functional failure, the issue is considered a URI (URI 05000440/2009005-03, Potential Missed Reporting Requirement for Loss of Residual Heat Removal During Shutdown).

40A3 Follow-up of Events and Notices of Enforcement Discretion (71153)

.1 Motor Driven Fire Pump Failure Wets Down ESW Pumphouse and Diesel Driven Fire Pump Failure

a. Inspection Scope

The inspectors responded to a report of a water leak in the ESW pumphouse on October 2, 2009. Piping attached to a vacuum breaker on the top of the motor driven fire pump had failed while the pump was in operation providing pressure to the site firemain. The inspectors reviewed the operator's actions during the event and monitored the long term response to the wetting of other electrical equipment in the pumphouse. The licensee response was followed in the long term and various other elements of the outage, which occurred subsequent to this event, are documented in other sections of this report. As part of the initial response to this event, the diesel driven fire pump was started and placed in service to maintain pressure in the firemain. At the time the jockey pump, which normally fulfills the purpose of keeping the firemain pressurized, was not available. After several hours of run time, the diesel driven fire pump discharge pressure began to decrease and it was declared inoperable and a portable pump was required for a period of time, in accordance with licensee procedures, to maintain firemain pressure. The inspectors reviewed in detail, the licensee's process for supporting fire fighting capability on the site throughout this event.

Investigation by the licensee identified that the motor driven fire pump vacuum breaker piping failed because of high cycle fatigue due to vibration during an extended operation period of the pump with discharge through the pump relief valve. The diesel driven fire pump was determined to have failed due to clogging in the fuel filter after extended operations. The inspectors reviewed the licensee's investigation and determination of

failure for both the motor driven and diesel driven fire pumps. The inspectors reviewed all actions taken to verify operability of wetted electrical equipment in the ESW pumphouse including the 'B' ESW pump cabling failure which occurred during a confidence run, documented in Section 4OA3.2 of this report, and restoration of other equipment wetted by the failed vacuum breaker piping. The licensee initiated CR 09-65802 and took the immediate corrective actions of installing the temporary fire pump directed by the licensees operating procedures.

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

b. Findings

No findings of significance were identified.

.2 ESW 'B' Cable Failure During Confidence Run and Subsequent Manual Reactor Scram

a. Inspection Scope

The inspectors responded to the Operations Control Center when the 'B' ESW pump, which was operating for a confidence run following wetting due to a pipe failure described in Section 4OA3.1, tripped off electrically on the morning of October 15, 2009, prior to completion of a 2-hour confidence run. The inspectors followed the troubleshooting and repair activities conducted by the licensee to determine the cause of the pump's electrical failure and actions taken to restore the pump to service. As a result of the loss of the pump, the plant entered a shutdown TS action statement and subsequently began a shutdown of the reactor on the same day. During the course of the shutdown, at 10:41 p.m., the 'A' reactor recirculation pump failed to downshift from fast to slow speed. This failure was reviewed and documented in Section 1R15 of this report. As a result of the loss of the recirculation pump and subsequent loss of the # 4 feedwater heater, the operators determined that the plant was no longer controlled in the planned reactivity sequence for the shutdown and a manual scram was inserted by taking the control switch to shutdown. The inspectors reviewed the operator's actions taken in accordance with licensee procedures and reviewed the unit and system responses to verify that the actions and system responses were as expected. The inspectors later reviewed the post-scram report and preparations and corrective actions prior to restart.

The licensee initiated corrective actions under CR 09-65972 and immediate corrective actions were those taken to place the plant in a safe condition in accordance with TS requirement. The pump trip was subsequently determined to be a failure of the cabling due to a latent manufacturing defect in the cabling and not due to the wetting event in the pumphouse.

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

b. Findings

No findings of significance were identified.

.3 'B' Reactor Recirculation Pump Flow Control Valve Oscillations

a. Inspection Scope

On November 4, 2009, the inspectors responded to the control room when the reactor recirculation pump 'B' flow control valve was observed to be opening and closing without an operator demand signal. The inspectors observed the operator actions in response to the flow oscillations. The licensee has a documented history of this valve having a little play in the linkage when operating at less than full reactor power, and subsequently determined that this event was a reoccurrence of an already known and understood plant system response. The inspectors reviewed the licensee's contention that the flow changes seen during this event were normal for plant startup, shutdown, and power change conditions. The licensee initiated CR 09-67222 to document the investigation of this event and conclusions indicated above.

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

b. Findings

No findings of significance were identified.

.4 (Closed) Licensee Event Report 05000440/2009003-00: Completion of Technical Specifications Required Shutdown Due to Division 2 Emergency Service Water Inoperability.

On October 15, 2009, the 'B' ESW pump tripped during a confidence run being conducted after an equipment wetting event described in Section 4OA3.1 above. The cause of the trip was eventually determined to be a failure of the cabling from the control complex to the Emergency Service Water (ESW) pump, and not associated with the wetting event, although potentially exacerbated by the predictive maintenance testing methodology conducted on the cable prior to the confidence run. The cable testing was conducted in accordance with standard current industry procedures which are under review by the industry for the potential negative impact that they may have on cabling. A secondary cause was determined which may be associated with water treeing in the conduit where the cable failed. However, the failure analysis of the cable did not indicate that the water intrusion in this section of the conduit (not caused by the wetting event) did not affect the cable insulation's integrity. The primary cause was determined to be a latent pre-existing manufacturing defect in the power supply cable. Plant shutdown was completed on October 16, 2009, at 12:48 a.m. See Section 4OA3.5 for further information on a complication during the shutdown. The licensee documented the failed equipment in CR 09-65972 and conducted a root cause analysis. The LER and the root cause were reviewed by the inspectors and no findings of significance were identified and no violation of NRC requirements occurred. This LER is closed.

.5 (Closed) Licensee Event Report 05000440/2009004-00: Reactor Recirculation Pump Failure Results in Manual Reactor Protection System Actuation

On October 16, 2009, while in the process of shutting down the reactor due to a TS-required shutdown described in Section 4OA3.4, the 'A' reactor recirculation pump failed to shift to slow speed when the operators attempted to down shift the pump. The failure was determined to be in the LFMG output breaker and a root cause inspection

subsequently determined that the failure was a human performance maintenance error made during a preventative maintenance task. This performance deficiency was reviewed under Section 1R15, earlier in this report. The licensee documented the failed equipment in CR 09-66058 and took the immediate corrective actions to place the plant in a safe condition by inserting a manual scram. The LER was reviewed by the inspectors and the only finding of significance was the one reviewed and documented in Section 1R15. This LER is closed.

40A5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors conducted the 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 inspectors' 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 reviews and inspection activities.

b. Findings

No findings of significance were identified.

.2 (Closed) Unresolved Item 05000440/2009003-04; Dose Overrun on RWP 09-6035 for the Alternate Decay Heat Removal Project.

a. Inspection Scope

A URI was documented in NRC IR 05000440/2009003 associated with the licensee's ALARA planning and work controls for the ADHR project. The ADHR project was ongoing during the last refueling outage (RFO-12) so the total dose expended had not yet been realized. Since the initial inspection, work on the project was completed and final dose expenditure was determined.

Specifically, the inspectors compared the results achieved (including dose rate reductions and person-rem used) with the intended dose established in the licensee's ALARA planning for the ADHR work activities. Reasons for inconsistencies between intended and actual work activity doses were reviewed.

b. Findings

Introduction: One NRC-identified finding of very low safety significance (Green) was identified for inadequate job planning and ineffective work controls, which contributed to significantly more in-field work hours for craft personnel and elevated worker radiation fields. These problems impacted the licensee's ability to minimize dose for the ADHR project during RFO-12. The issue resulted in an actual dose outcome that was not

consistent with the planned, intended dose for work associated with modifications to the ADHR.

Description: The initial dose estimates for ADHR modification activities were primarily based on historical dose rates of the work area and person-hour estimates that were developed from an incomplete understanding of the detail of the work needed to be performed. Job planning deficiencies were attributable by the licensee, in part, to a fast-tracked project design. The initial dose estimate for this radiation work permit (RWP) 09-6035 was 15.172 person-rem verses the actual collective dose (74.528 person-rem) received by workers for the modification project. Early in the project it was recognized that actual ambient work area dose rates were underestimated by a nominal factor of 2.2 and was reflected in Revision 01 of the RWP, which brought the dose estimate to 31.520 rem. The agency based its regulatory assessment of the project's dose performance on this revised dose estimate.

There was also an increase in actual work hours for the project that was well above the revised RWP work hour estimate attributable primarily to poor work controls and work planning deficiencies (i.e., lack of detailed work packages leading to in-field rework, etc.). Additionally, the full details of the in-plant work for this project were not known to the radiation protection organization at the beginning of the outage. Consequently, there were missed opportunities to employ exposure reduction techniques such as task-specific worker training, or use of mock-ups.

Specific rework and work control issues associated with the job included:

- ASME design specification issues necessitated weld modifications (14.5 rem additional);
- incorrect fabrication of the spool pieces required re-work in the field (2.8 rem additional); and
- misinterpretation and inappropriate use of guidance for rigging (GCI-0016, "Scaffolding Erection, Modification, or Dismantling Guidelines") necessitated rework of rigging the ADHR spool pieces (1.667 rem additional).

Also, the station drained sludge and debris from the reactor cavity through the shutdown cooling system instead of wet-vacuuming the sludge and debris from the reactor cavity as was originally planned. This late change in refuel floor work plans adversely impacted the ambient dose rates in the Auxiliary Building 599' elevation and added an estimated additional 4.3 rem to the ADHR project. The potential radiological impact of draining of the reactor cavity through the RHR system was a known condition at the station and was a lesson learned from the prior refueling outage.

The dose estimates for the modification to the ADHR work were re-adjusted several times as the licensee developed a more complete understanding of the actual in-field work scope and established more effective control of in-field activities.

Analysis: Inadequate job planning and issues with work controls contributed to significantly more in-field work hours for craft personnel and elevated worker radiation fields. The inspectors determined that these issues impaired the licensee's ability to minimize dose for the ADHR project and represents a performance deficiency as defined in NRC IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening." The performance deficiency was within the licensee's ability to foresee and should have

been prevented, in that, developing the dose estimate, and subsequently instituting sufficiently detailed planning and corresponding dose reduction initiatives were activities within the licensee's control and necessitated by the licensee's work control process.

The finding was not subject to traditional enforcement since the incident did not have a significant or potentially significant safety consequence, did not impact the NRC's ability to perform its regulatory function, and was not willful. The finding was more than minor because it impacted the Occupational Radiation Safety Cornerstone objective for ensuring adequate protection of worker health and safety from exposure to radiation in the attribute of program and process for ALARA planning, in that, ineffective work control and ALARA planning deficiencies contributed to an actual increase in worker doses in excess of 5 person-rem and exceeded the licensee's initial intended dose estimates by more than 50 percent. Therefore, the finding was evaluated using the SDP. Since this finding involved radiological controls and ALARA planning, the inspectors utilized IMC 0609, Appendix C, "Occupational Radiation Safety SDP," to assess its significance.

The inspectors concluded that the finding did not result in an occupational overexposure, a substantial potential for an overexposure, or a compromised ability to assess dose. The inspectors determined that the finding involved ALARA planning and work controls. Since the licensee's current 3-year rolling collective dose average was less than 240 person-rem, per unit, at the time the performance deficiency occurred, the inspectors concluded that the SDP assessment for this finding was of very low safety significance (Green). The finding was determined to be associated with a cross-cutting aspect in the area of human performance in work controls per IMC 0305 (H.3.a), in that the licensee did not appropriately plan work activities by incorporating radiological safety.

Enforcement: Enforcement action does not apply because the performance deficiency did not involve a violation of a regulatory requirement. The issue was entered into the licensee's CAP as CR 09-55801, and corrective actions were implemented to address the organization and programmatic deficiencies in managing the installation of major plant modifications. FIN 05000440/2009005-04.

.3 (Closed) NRC Temporary Instruction 2515/175 "Emergency Response Organization, Drill/Exercise Performance Indicator, Program Review"

The inspectors performed Temporary Instruction (TI) 2515/175, ensured the completeness of the TI's Attachment 1 and then forwarded the data to NRC Headquarters.

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to the Site Vice President, Mr. Mark Bezilla, and other members of licensee management on January 06, 2010. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

.2 Interim Exit Meetings

Interim exits were conducted for:

- radiation monitoring instrumentation and protective equipment program inspection with the Director of Work and Outage Management, Mr. H. Hanson, on November 6, 2009;
- radiological effluents program inspection with the Plant General Manager, Mr. K. Krueger, on November 20, 2009;
- licensed operator requalification training program annual review with Mr. M. Brogan, License Operator Requalification Training Lead, on December 15, 2009, via telephone; and
- emergency preparedness inspection interim exit with the Director, Work and Outage Management, Mr. H. Hanson, conducted at the site on November 6, 2009, and by telephone with the Compliance Supervisor, Mr. C. Elberfeld, via telephone on December 17, 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.

4OA7 Licensee-Identified Violations

The following violation of very low significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as an NCV.

- Technical Specification 5.4.1.(a) requires the licensee to establish, implement, and maintain adequate written procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, dated February 1978, which includes procedures for a RWP system. Procedure NOBP-OP-4009 "Radworker Expectations" Step 4.2.1 for General Requirements, require personnel entering the RCA to "Read, Understand, and sign on the appropriate RWP. Contrary to the above, on September 30, 2009, several radiological control administrative barriers failed, such that a station worker entered a locked high radiation area on an incorrect RWP. This was identified in the licensee's CAP as CR 09-65239. Corrective actions included performance management of the individuals involved in accordance with station protocol and improvements to the administrative controls for access to locked high radiation areas. The finding was determined to be of very low safety significance because it was not an ALARA planning issue, there was no overexposure nor potential for overexposure, and the licensee's ability to assess dose was not compromised.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee

M. Bezilla, Vice President Nuclear
K. Krueger, Plant General Manager
A. Cayia, Director, Performance Improvement
R. Coad, Manager, Regulatory Compliance
M. Stevens, Director, Maintenance
D. Evans, Manager, Operations
J. Grabner, Director, Site Engineering
H. Hanson, Jr., Director, Work and Outage Management
P. McNulty, Radiation Protection Manager
R. Smith, Manager, Emergency Preparedness

State of Ohio

C. O'Claire, Ohio Emergency Management Agency
R. Moss, Ohio Emergency Management Agency
R. Sacchet, Ohio Emergency Management Agency

LIST OF ITEMS OPENED, CLOSED, DISCUSSED

Opened and Closed

05000440/2009005-01	FIN	Failure to Adhere to Maintenance Instructions Resulted in Loss of Recirculation Pump 'A' (Section 1R15)
05000440/2009005-02	NCV	Unposted High Radiation Area at the TIP Machines (Section 2OS1)
05000440/2009005-04	FIN	Excess Dose Incurred for the Alternate Decay Heat Removal Project (Section 4OA5)

Closed

05000440/2009003-00	LER	Completion of Technical Specifications Required Shutdown due to Division 2 Emergency Service Water (ESW) Inoperability (Section 4OA3)
05000440/2009004-00	LER	Reactor Recirculation Pump Failure Results in Manual Reactor Protection System Actuation (Section 4OA3)
05000440/2009003-008	URI	Dose Overrun on RWP 09-6035 for the Alternate Decay Heat Removal Project (Section 4OA5)
2515/175	TI	Emergency Response Organization, Drill/Exercise Performance Indicator, Program Review (Section 4OA5)

Opened

05000440/2009005-03	URI	Potential Missed Reporting Requirement for Loss of Residual Heat Removal During Shutdown (Section 4OA2)
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LIST OF DOCUMENTS REVIEWED

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

1R01 Adverse Weather

CR 06-8939; Storage Area in ESW Swale Area; dated October 26, 2006
CR 07-14960; Snow Piled in ESW Swale and Electrical Equipment Stored in Swale Path;
dated February 21, 2007
CR 08-43802; Flooded IB Roof; dated July 23, 2008
PYBP-PMS-0002; Snow Removal Guideline; Revision 1

1R04 Equipment Alignment

VLI-R44; Division 1 & 2 Diesel Generator Starting Ai; Revision 4
VLI-R45; Division 1 & 2 Diesel Generator Fuel Oil System; Revision 5
VLI-R46; Division 1 & 2 Diesel Generator Jacket Water Systems; Revision 4
Drawing 302-0351; Standby Diesel Generator Starting Air; Revision BB
Drawing 302-0352; Standby Diesel Generator Fuel Oil System; Revision GG
Drawing 302-0353; Standby Diesel Generator Lube Oil; Revision S
Drawing 302-0354; Standby Diesel Generator Jacket Water; Revision U
VLI-P42; Emergency Closed Cooling System; Revision 15
Drawing 302-0621; Emergency Closed Cooling System; Revision SS
Drawing 302-0622; Emergency Closed Cooling System; Revision M
SOI-M15; Annulus Exhaust Gas Treatment System; Revision 8
Drawing 912-605; Reactor Building Annulus Exhaust Gas Treatment; Revision W

1R05 Fire Protection (Annual/Quarterly)

PAP-1910; Fire Protection Program; Revision 19
FPI-A-A02; Periodic Fire Inspections; Revision 5
FPI-1AB; Auxiliary Building Unit 1; Revision 2
FPI-TPB; Turbine Power Building; Revision 3
FPI-OEW; Emergency Service Water Pumphouse; Revision 4
FPI-TB; Turbine Building; Revision 3
FPI-OCC; Control Complex; Revision 7
FD-1075-102709; Controlled Complex Chilled Water Pump 'B' Drill Guide;
date October 27, 2009

1R06 Internal Flooding

PAP-0204; Housekeeping/Cleanliness Control Program; Revision 23
ARI-H13-P601-0018; Leak Detection; Revision 13
NOP-OP-1012; Material Readiness and Housekeeping Inspection Program; Revision 2
CR 09-61715; Plugged Floor Drains; dated July 11, 2009
CR 09-68470; RHR A Cubicle Drain Sump Valve Will Not Open; dated December 2, 2009
Drawing 911-0617; Auxiliary Building Drains; Revision F

1R07 Heat Sink

EMARP-0011; Emergency Service Water System Monitoring Program; Revision 5
NOP-ER-2006; Service Water Reliability Management Program; Revision 1

SVI-P45-T0369; ECC Flow from ECC HX A Channel Functional/Calibration; Revision 6
SVI-P45-T0371A; ESW Flow to Div 1 Diesel HX Channel Functional/Calibration; Revision 7
PTI-P42-P0001; Emergency Closed Cooling A Heat Exchanger Performance Testing;
Revision 6
PRI-R46-P0001-A; Div. 1 Diesel Generator Jacket Water Heat Exchanger Performance;
Revision 2

1R11 Licensed Operator Regualification Program

OT-3070-RP1B, Rev. 5, "Annual Exam Scenario"
OT-3070-PC1B, Rev. 1, "Annual Exam Scenario"
Regualification Examination Results/Calendar Year 2009

1R12 Maintenance Effectiveness

CR 07-24208; Documentation of Auto-Start of Motor Fire Pump PY-P54-C0002;
dated July 26, 2007
CR 07-28091; Unexpected Auto Start of the Diesel Fire Pump; dated October 8, 2007
CR 07-30542; Fire Jockey Pump Failed; Blown Fuse; dated November 26, 2007
CR 07-30974; Notification Written for Packing Leak on Jockey Fire Pump;
dated December 4, 2007
CR 08-38845; Fire Service Jockey Pump Running Excessively; dated April 22, 2008
CR 08-45587; Fire Service Jockey Pump Running Continuously; dated August 30, 2008
CR 08-45864; Unexpected Auto Start of Motor Fire Pump, 0P54C0002;
dated September 6, 2008
CR 09-64170; Automatic Start of Diesel Fire Pump During Hose Testing;
dated September 8, 2009
CR 09-65799, Conditional Release of Jockey Fire Pump; dated October 12, 2009
NOP-ER-3004; FENOC Maintenance Rule Program; Revision 1
PAP-1125; Monitoring the Effectiveness of Maintenance Program Plan; Revision 8
Perry Fire Protection System Health 2009-2, April 1 through June 30, 2009
PYBP-PES-0001; Perry Maintenance Rule Reference Guide; Revision 14
WO 200264606; Clean Diesel Fire Pump Fuel Oil Storage Tank; dated May 19, 2007
Drawing 302-0621; Emergency Closed Cooling System; Revision SS
Drawing 302-0622; Emergency Closed Cooling System; Revision M
CR 07-13119; Remote Shutdown ECC Indicator Reads High; dated February 13, 2007
CR 07-25190; Relief Valve Replacements Not Properly Scheduled; dated September 12, 2007
CR 07-26010; Unable to Perform PMT for ECC Valves Due to Unexpected Alarm Indication
Low; dated September 25, 2007
CR 08-35163; Unplanned Tech Spec Entry Which Declared ECC B and Associated Systems
Inoperable; dated May 2, 2008
CR 08-41933; E.C.C. "B" Surge Tank Level; dated July 10, 2008
CR 08-47182; Loss of Minimum Flow Path for ECC A During System Maintenance;
dated October 22, 2008
CR 07-24951; SVI-P42 Valve Limit Switch Failed to Properly Indicate Closed (P42-F255B);
dated August 10, 2007
CR 07-15120; SVI-P42-T2002 Valve Limit Switch Failed to Properly Indicate Closed
(P42-F255B); dated February 26, 2007
CR 07-15121; SVI-P42-T2002 Valve Limit Switch Failed to Properly Indicate Closed
(P42 F380B); dated February 26, 2007
CR 07-20172; 0P42F0380B Failed to Indicate Properly Closed; dated May 8, 2007
CR 07-29359; Unsat Stroke Time During SVI-P42T2002; dated October 29, 2007

CR 07-30922; Seat Torque Valve Closing Value Exceeds Maximum Allowable;
dated December 3, 2007
CR 07-30922 POD; Prompt Operability Determination for CR 07-30922;
dated December 5, 2007
CR 09-54385; 0P42F255B Blew All Three Main Line Fuses; dated February 28, 2009
CR 09-62185; PY-SA-09-031 Critical Component Failure Assessment – Reliability
Improvements; dated July 22, 2009
Maintenance Rule Functions, Performance Criteria, and Classifications; Maintenance Rule
Guidance Document; dated January 11, 2008
Perry Control Room HVAC System Health and Status Report 2009-1, January 1 through
March 31, 2009
Perry Control Room HVAC System Health and Status Report 2009-2, April 1 through
June 30, 2009
Perry Control Room Emergency Recirculation System Health and Status Report 2009-1,
January 1 through March 31, 2009
Perry Control Room Emergency Recirculation System Health and Status Report 2009-2,
April 1 through June 30, 2009
List of Condition Reports generated for the RHR System; January 2007 through
December 2009
CR 07-21268; 0M25R0101B Temperature Controller Not Functioning Properly;
dated May 29, 2007
CR 07-28685; Control Room Damper Limit Switch Intermediate After M25/26 Vent Shift;
dated October 16, 2007
CR 08-37496; M25/M26 A Train Shutdown Unexpectedly During SVI-M26-T1264-B;
March 31, 2008
CR 08-51245; Control Room Ventilation Train Tripped During ER Fan Fuse Replacement;
dated December 23, 2008
CR 09-59763; Control Room Ventilation Train B Trip; dated May 28, 2009
CR 09-59701; 1M25N0170B Transmitter Could Not Be Adjusted Within the Allowable Band;
dated May 26, 2009
CR 09-61202; SVI-M26T3020 Failed Charcoal Sample Results; dated June 30, 2009

1R13 Maintenance Risk Assessments and Emergent Work Control

CR 09-67222; ONI-C51 Entry Due to Unplanned Flow Control Valve Movement;
dated November 4, 2009
NOP-OP-1005-04; Overall Key Shutdown Defense in Depth Function Status—Orange;
dated October 19, 2009
PAP-1925; Shutdown Defense in Depth Assessment and Management; Revision 4
NOP-OP-1007; Risk Management; Revision 6
NOP-OP-1005; Shutdown Defense in Depth; Revision 12
ONI-E12-2; Loss of Decay Heat Removal; Revision 23
Contingency Plan for Loss of RHR A Shutdown Cooling During ESW B Outage;
dated October 19, 009
Calculation No. E12-117; Evaluation of Cold Shutdown by Boiling; dated October 20, 2009

1R15 Operability Evaluations

CR 09-65797; Motor Fire Pump Leak; dated October 12, 2009
CR 09-65805; Fire Watch Missed; dated October 12, 2009
CR 09-65817; Degraded Diesel Fire Pump; dated October 13, 2009
CR 09-65829; Fire Watch Missed; dated October 13, 2009

CR 09-65842; Rejected Fuel Oil Delivery for Emergency Fire Diesel Tank;
dated October 12, 2009
CR 09-65888; Diesel Fuel in Storage Tank for Diesel Powered Fire Pump Unsat;
dated October 13, 2009
CR 09-66314; Frequency Clarification Needed in PMI-0072; dated October 20, 2009
NORM-ER-3406; Diesel – Small Standby; Revision 5
PAP-1910; Fire Protection Program; Revision 19
PMI-0072; Preventive Maintenance Instruction for Fire Pump Diesel Engine, 0P54C0001;
Revision 5
SOI-P54(WTR); Fire Protection System – Water; Revision 12
Prompt Operability Determination Form for CR 09-67238; dated November 6, 2009
CR 09-67238; Unexpected Results While Performing Surveillance; dated November 4, 2009
CR 09-65802; Motor Fire Pump Discharge Piping Leakage in ESW Pump House;
dated October 12, 2009
Prompt Operability Determination for ESW Pumps A and B; dated October 14, 2009
CR 09-65972; ESW Pump B tripped; dated October 15, 2009
Plant Narrative Log Entries for ESW B August 2009 through October 2009
WO 200379640; Tighten Inspection Ports for ESW Pump B; dated October 9, 2009
PDB-H0055; Equipment Associated with Electrical Manholes; Revision 0
CR 06-03472; Electrical and Communication Manhole Water Intrusion; dated August 2, 2006
GEI-0161; Medium Voltage Shielded Cable Testing and Diagnostics; Revision 3
CR 09-65830; Water Spray Observed on ESW 'A' and 'B' Motors; dated October 13, 2009
CR 09-65981; ESW Insulation Resistance Anomaly; dated October 15, 2009
CR 09-66058; Recirc Pump A Trip, Failure to Transfer to Slow Speed; dated October 16, 2009

1R19 Post-Maintenance Testing

CR 09-66110; NRC Identified Issue Regarding Operability of the Diesel Fire Pump;
dated October 15, 2009
FTI-F0036; Post Maintenance Test Manual; Revision 7
PTI-P54-P0034B; Division 2 Diesel Generator CO2 System Detection/Operability Test;
Revision 3
PY-REV-08-2828; Repetitive Maintenance – Revision Request Form for Diesel Fire Service
Pump; dated September 25, 2008
WO 200238613; Diesel Fire Service Pump – Annual Inspection; dated November 30, 2007
WO 200269368; Division 2 Diesel Generator CO2 System Detection/Operability;
dated December 7, 2009
WO 200390625; Diesel Fire Service Pump Functional Test; October 14, 2009
CR 09-66769; Breaker Springs Did Not Discharge; dated October 27, 2009
SVI-C11-T1006; Control Rod Maximum Insertion Time; Revision 13
WO 200390753; Replace EF1A12-J relays '27' and 'K8; dated October 24, 2009
GEI-0006; General Maintenance of Motor Control Centers; Revision 16
Maintenance Rule Functions, Performance Criteria and Classifications; dated January 11, 2008
SOI-P45/P49; Emergency Service Water and Screen Wash Systems; Revision 16
CR 09-65862; ESW 'A' Building Ventilation Fan Switchgear Wetted by Motor Fire Pump Leak;
dated October 13, 2009
WO 200349028; Install Fire Service Jockey Pump; dated October 18, 2009
FTI-F0036; Perry Post Maintenance Test Manual; Revision 7
CR 09-66143; Fire Jockey Pump Vacuum Breaker Not Installed Before Initial Run;
dated October 17, 2009
GEI-0001; Performing Insulation Resistance Checks; Revision 11
WO 200284291, Bkr EH1205 Exercise and Service "ESW Pump B;" dated October 28, 2009

GEI-0135; ABB Power Circuit Breakers 5 kV Types 5HK250 and 5HK350; Revision 21
CR 09-66769; Brkr Springs Did Not Discharge; dated October 28, 2009
WO 200218637; Bkr EH1110 Exer-serv RHR 'A' Pump; dated December 2, 2009
WO 200328956; New PM" Replace Cntrl Relays in EH1110 Cubicle; dated December 2, 2009
WO 200394111; Perform Testing to New EHF-1-D Transformer Following Installation;
December 17, 2009

1R20 Forced Outage

ONI-N36; Loss of Feedwater Heating; Revision 12
ONI-C51; Unplanned Change in Reactor Power or Reactivity; Revision 24
SOI-R23; 480 Volt Load Centers; Revision 13
IOI-8; Shutdown by Manual Reactor Scram; Revision 6
IOI-3; Power Changes; Revision 44
ONI-C51; Unplanned Change in Reactor Power or Reactivity; Revision 24
ONI-N36; Loss of Feedwater Heating; Revision 12
ONI-S11; Hi/Low Voltage; Revision 5
NOP-OP-1005-04; Overall Key Shutdown Defense in Depth Function Status—Orange;
October 19, 2009
NOP-OP-1005-04; Overall Key Shutdown Defense in Depth Function Status—Orange;
October 20, 2009
NOP-OP-1005-04; Overall Key Shutdown Defense in Depth Function Status—Yellow;
October 21, 2009
PAP-1925; Shutdown Defense in Depth Assessment and Management; Revision 4
NOP-OP-1007; Risk Management; Revision 6
CR 09-66058; Reactor Recirc 'A' Pump Tripped When Transferring to Slow Speed;
dated October 15, 2009
Problem Solving Plan for CR 09-66058; dated October 22, 2009
WO 200168117; Clean & Inspect Rx Recirc LFMG A Relay Panel; dated April 10, 2007
Vendor File 42-G Excerpt GEH 3247C; Instructions for GE Magnetic Contactors/Starters
NOP-WM-4006; Conduct of Maintenance; Revision 3
NOP-LP-2601; Procedure Use and Adherence; Revision 1
Post Scram Restart Report—Perry Nuclear Power Plant; Scram No. 01-09-03;
dated October 19, 2009
Calculation No. E12-117; Evaluation of Cold Shutdown by Boiling; dated October 20, 2009
CR 09-66924; PAP-1925 Inventory Control Guideline Enhancement; dated October 29, 2009
CR 09-66988; Operational Lessons Learned from Having MSIVs Open with Vacuum in the
Condenser; dated October 31, 2009
CR 09-66980; Operational Lessons Learned from Reactor Level Instrument Anomaly;
dated October 30, 2009
CR 09-66913; Drywell Floor Drain Sump Pump B Exceeds Motor Nameplate Rating for Running
Amps; dated October 29, 2009
CR 09-66888; Shutdown Range Level Instrumentation Reads High; dated October 29, 2009
CR 09-66807; Cable Jacket Damaged during Seal Removal; dated October 28, 2009
CR 09-67074; HU Performance Error While Testing Replacement Transformer;
dated November 1, 2009
CR 09-66993; Failure to Fill and Vent 1E31-N076B (RWCU Pump Flow);
dated October 30, 2009
CR 09-67059; RWCU Delta Flow B Channel Check Unsatisfactory; dated November 1, 2009

1R22 Surveillance Testing

SVI-E21-T0160; ADS/LPCS Pump High Discharge Pressure Channel Calibration; Revision 4
PTI-P54-P0034B; Division 2 Diesel Generator CO2 System Detection/Operability Test;
Revision 3

WO 200269368; Division 2 Diesel Generator CO2 System Detection/Operability;
dated December 7, 2009

SVI-C71-T0046; Turbine Stop Valve Closure and Turbine Control Valve Fast Closure Channel
Functional for 1C71-N006A, B, C, D, E, F, G, H and 1C71-N005A, B, C, D; Revision 7

SVI-C71-T0046; Turbine Stop Valve Closure and Turbine Control Valve Fast Closure Channel
Functional for 1C71-N006A, B, C, D, E, F, G, H and 1C71-N005A, B, C, D; Revision 8

CR 09-67238; Unexpected Results While Performing Surveillance; dated November 4, 2009

SVI-E31-T5311-B; Rod Pattern Control System Low Power Setpoint Channel A Calibration for
1C11-N054A; Revision 7

SVI-E31-T5311-B; TB MSL Temperature High Channel Functional for 1E31-N361B; Revision 5

WO 200299563; Turbine Building Main Steam Line Temperature High Channel Functional for
1E31-N361B and 1E31-N361C; dated November 17, 2009

WO 200371612; Rod Pattern Control System Low Power Setpoint Channel A Calibration for
1C11-N054A; dated November 17, 2009

SVI-GEN-T2002; Safety-Related Waterleg Pumps Operability Test; Revision 3

WO 200387882; Safety-Related Waterleg Pumps Operability Test; dated November 24, 2009

CR 09-68211; RCIC Water Leg Pump High Vibration; dated November 24, 2009

CR 09-68210; 1E12N00873 Calibration Overdue; dated November 24, 2009

SVI-R43T1317; Diesel Generator Start and Load Division 1; Revision 14

SVI-P47-T2001-B; Control Complex Chilled Water B Pump and Valve Operability Test;
dated December 1, 2008

PAP-1101; Inservice Testing of Pumps and Valves; dated December 10, 2009

ISTP; Pump and Valve Inservice Testing Program Plan; dated December 10, 2009

1EP2 Alert and Notification System Evaluation

Letter from FEMA to Perry Accepting Siren System; dated September 1986

The Siren Alerting System for the Perry Nuclear Power Plant, Design Report by D. A. Towers
and D. N. Keast; dated June 1985 (prepared for the Cleveland Electric Illuminating
Company)

PSI-0021; Perry Operations Manual, Prompt Alert System; Revision 2

PYBP-ERS-0028; Prompt Alert Siren System Emergency Planning Zone Testing; Revision 2

Standard Operating Procedure Siren Activation, Lake, Geauga, and Ashtabula Counties;
dated January 2, 2009

Perry Plant Prompt Alert System Siren Test Reports and Maintenance Records;
dated October 2007 through October 2009

1EP3 Emergency Response Organization Augmentation Testing

Perry Nuclear Plant Emergency Response Organization Roster; dated November 4, 2009

PY-SA-09-042; Emergency Response Organization, 2/10/2009 Unannounced Drive-in Drill,
Self-Assessment Report

Emergency Response Organization Call-in Drill Records; dated October 2007 through
October 2009

Emergency Pager System Test Records; dated October 2007 through October 2009

1EP4 Emergency Action Level and Emergency Plan Changes

10 CFR 50.54(q) Evaluation Package; EPI-A0001; Revision 20

EPI-A0001; Emergency Action Levels; Revision 20

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies

CR 09-67467; NRC Comment on Interface with State and Counties Assessment;
dated November 6, 2009

CR 09-67672; ERS Documentation Improvement for ORO Training Needed;
dated November 6, 2009

CR 09-66731; Four of 55 Objectives Not Met During October 6, 2009, Emergency Drill;
dated October 8, 2009

CR 07-30736; PY-PA-07-04; Interface with County and Emergency Management Agencies;
dated November 29, 2007

CR 07-30655; PY-PA-07-04; E-Pan Commitment Not Updated; dated November 28, 2007

CR 08-37423; TSC and EOF Ventilation Not in Recirculation during March 25, 2008 Drill;
dated April 1, 2008

CR 08-41865; Emergency Plan and Conduct of Operations RP Tech Staffing Disagreement;
dated June 6, 2008

CR 08-43972; Review Davis-Besse Response to 2008 INPO EP Visit; dated July 30, 2008

CR 08-46623; Emergency Notification Incorrect During Operator Training;
dated September 15, 2008

CR 08-47609; 2008 Evaluated Exercise – EOF Ventilation Issue; dated October 9, 2008

CR 08-47613; 2008 Evaluated Exercise – Unanticipated Controller Injects;
dated October 9, 2008

CR 08-50858; Unable to Calibrate E-520 Dose Rate Instruments for E-Plan;
dated December 15, 2008

CR 07-31338; MS-C-07-12-24 – E-Plan Offsite Notification Time Exceeded during ERO Drill;
dated December 11, 2007

CR 08-51144; E-Plan Equipment in OSC Instrument Locker Found with Deficiencies;
dated December 19, 2008

NOBP-LP-2022; Compliance Auditing; Revision 4

FENOC Master Audit Plan S-EP; Emergency Preparedness; Revision 1

FENOC Oversight Quality Field Observation; Emergency Preparedness; Perry Plant Interface
with State and Local Governments; November 2007 and November 2008

Fleet Oversight Audit Report; MS-C-07-12-24; Emergency Preparedness; Audit Dates:
December 1, 2008, through January 22, 2009

Fleet Oversight Audit Report; MS-C-08-12-24; Emergency Preparedness; Audit Dates:
December 3, 2007, through January 30, 2008

PY-PA-07-04; 2007; QFO FLT 1200728; SEP002 Interface with State and Local Government

MS-C-08-12-24; 2008; QFO PY 120082503; SEP002 Interface with State and Local
Government

Tri-County Directors Meeting Minutes; dated December 18, 2007, and April 29, 2008

Nuclear Emergency Planning Advisory Committee Agenda; dated January 29, 2009, and
March 31, 2009

PY-SA-09-053; Self-Assessment; Emergency Response Organization July 17, 2009, Integrated
Facility Drill; dated October 19, 2009

1EP6 Drill Evaluation

Perry Nuclear Power Plant 10-06-2009 ERO Drill Scenario Guide; dated October 1, 2009

10-06-09 ERO Drill Objectives Summary

2OS1 Access Control to Radiologically Significant Areas

CR 09-59344; Operations Received the TIP Area Rad Alarm; dated May 2009

CR 09-67987; Unposted High Radiation Area from TIP Run; dated November 2009

EPI-A1; Perry Operations Manual Emergency Plan Implementing Instruction; Revision 20

FTI-A0001; TIP Operation; Revision 06
NOP-OP-4101; Access Controls for Radiologically Controlled Areas; Revision 01
NOP-OP-4107; Radiation Work Permit (RWP); Revision 04
ONI-D17; High Radiation Levels within the Plant; Revision 15
PTI-C51-P0002; Periodic Test Instruction Verification of Proper TIP Tubing Connection;
Revision 02

2OS3 Radiation Monitoring Instrumentation and Protective Equipment

Ops Duty Schedules and Qualification Records (also E-Plan Compliance for Maint, RP,
Chem and Fire Brigade); various dates
Breathing Air Bottle/Cylinder Fill Records; various dates
HPI-E0009; Control of Radiation and Contamination Detection Instrumentation; Revision 09
HPI-E0010; Operation of Lab Counters; Revision 3
HPI-J0001; Health Physics Instrument Control; Revision 04
HPI-J0006; Calibration of Portable Ion Chamber Instruments; Revision 07
HPI-J0014; Calibration of Portable Air Samplers; Revision 06
HPI-J0044; Calibration of the Merlin Gerin DCM Dosimeter; Revision 08
HPI-J0047; Calibration of the Small Articles Monitor; Revision 02
HPI-J0053; Calibration of the MG AMP Area Monitor Probe; Revision 05
HPI-J0054; Calibration of the ABACOS 2000 Whole Body Counting System; Revision 01
HPI-J0057; Calibration of the Gilian 3500 Live Flow Air Sampling Pump; Revision 00
HPI-J0063; Calibration of the Model CDM21 Electronic Dosimeter Calibrator; Revision 03
HPI-J0064; Calibration of the Tennelec Series 5 Counting System; Revision 00
HPI-J0065; Calibration and Use of the MGP Telepole; Revision 01
HPI-J0070; SAM-12 Calibration, Source Checks and Use; Revision 00
HPI-L0003; Equipment History; Revision 05
Mine Safety Appliances Certificates for Select Members of the Radiation Protection Staff;
various dates
NOP-OP-4301; Respiratory Protection Program; Revision 00
NOP-OP-4404; PCM-2 Calibration, Source Checks and Use; Revision 01
PSI-0022; Emergency Plan Training Program; Revision 03
PY-SVI-D19-T1356-A/B; Containment High Range Radiation Monitor Channel A Calibration for
1D19-K100; Revision 3
PY-SVI-D19-T1358-A/B; DW High Range Radiation Monitor Channel A Calibration for
1D19 K100; Revision 0
Radioactive Source Inventory Log; various dates 2009
Respiratory Protective Equipment History; Various Equipment; various dates
SCBA Unit Inspection Records; various dates 2008 through October 2009

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems

Annual Environmental and Effluent Release Report; dated 2007
Annual Environmental and Effluent Release Report; dated 2008
CHI-0005; Miscellaneous Sampling Systems; Revision 11
CHI-0006; Radiation Monitoring Alarm Setpoint Determination; Revision 16
CHI-0007; Radiological Effluent Data Reduction; Revision 13
CHI-0053; Operation of the Gamma Spectroscopy System; Revision 12
CR 08-46049; ODCM Change Missing TS 5.5.1 Documentation; dated September 2008
NOP-OP-2012; Groundwater Monitoring; Revision 04
NOP-OP-3202; FENOC Radiochemistry Quality Control Program; Revision 03
NOP-OP-4705; Response to Contaminated Spills/Leaks; Revision 02
Off-Site Dose Calculation Manual (ODCM); Revision 17

PAP-0809; Radiological Environmental Contamination Response; Revision 03
 PY-SVI-D17T8034; Unit 1 Plant Vent Effluent System and Sampler Flow Rate Monitor
 Functional/Calibration; various dates
 PY-SVI-M15T1240A; Annulus Exhaust Gas Treatment System Train A Flow and Filter
 Operability Test; various dates
 PY-SVI-M15T1240B; Annulus Exhaust Gas Treatment System Train A Flow and Filter
 Operability Test; various dates
 PY-SVI-M15T3015; "A" Annulus Exhaust Gas Treatment Charcoal Adsorber Operability Test
 and Plenum Inspection; various dates
 PY-SVI-M15T3015; "B" Annulus Exhaust Gas Treatment Charcoal Adsorber Operability Test
 and Plenum Inspection; various dates
 PY-SVI-M26T1260A; Control Room Emergency Recirculation Subsystem A Flow and Filter
 Operability Test; various dates
 PY-SVI-M26T1260B; Control Room Emergency Recirculation Subsystem B Flow and Filter
 Operability Test; various dates
 PY-SVI-M26T3020; "A" Control Room Emergency Recirculation Charcoal Adsorber Operability
 Test and Plenum Inspection; various dates
 PY-SVI-M26T3020; "B" Control Room Emergency Recirculation Charcoal Adsorber Operability
 Test and Plenum Inspection; various dates
 PY-SVI-M40T5329A; Fuel Handling Building Ventilation Exhaust Flow and Filter Operability
 Test - A Train; various dates
 PY-SVI-M40T5329B; Fuel Handling Building Ventilation Exhaust Flow and Filter Operability
 Test - B Train; various dates
 PY-SVI-M40T5329C; Fuel Handling Building Ventilation Exhaust Flow and Filter Operability
 Test - C Train; various dates
 PY-SVI-M40T5330; "A" Fuel Handling Building Ventilation Charcoal Adsorber Operability Test
 and Plenum Inspection; various dates
 SOI-D17; Airborne Radiation Monitoring Systems (Effluents); Revision 08

40A1 Performance Indicator Verification (71151)

MSPI Data Sheets for Emergency AC Power Systems from July 2008 to June 2009
 MSPI Data Sheets for High Pressure Injection System from July 2008 to June 2009
 MSPI Data Sheets for Emergency Service Water from July 2008 to June 2009
 MSPI Data Sheets for Heat Removal System; from October 2008 to June 2009.
 MSPI Data Sheets for Residual Heat Removal System; from October 2008 to June 2009.
 Control Room Operator Logs; July 2008 to June 2009
 List of Condition Reports for all MSPI monitored systems; July 2008 to June 2009
 MSPI Derivation Reports for all MSPI monitored systems; June 2009
 CR 09-66344; Correction needed for Div. 2 DG Feb 2009 MSPI Hours; dated October 20, 2009
 NOBP-LP-4012; NRC Performance Indicators; Revision 3
 PYBP-DES-0011; Mitigating Systems Performance Index; Revision 1
 Mitigating Systems Performance Index Basis Document; Revision 4
 CHI-0005; Miscellaneous Sampling Systems; Revision 11
 CHI-0053; Operation of the Gamma Spectroscopy System; Revision 12
 NOBP-LP-4012; NRC Performance Indicators; Revision 03
 RCS Specific Activity Monthly Reports; various dates 2008 through October 2009
 SOI-P35; Reactor Plant Sampling; Revision 16
 SVI-P35-T3011; Dose Equivalent I-131 Analysis; Revision 6
 Technical Specification 3.4.8; RCS Specific Activity and Bases Documents;
 Amendment No. 131

TID-14844; Calculation of Distance Factors for Power and Test Reactor Sites; Atomic Energy Commission; dated 1962
NOBP-LP-4012-11; Emergency Preparedness Drill/Exercise Performance Records; dated third Quarter 2008 through third Quarter 2009
NOBP-LP-4012-12; Emergency Response Organization Drill Participation Records; dated third Quarter 2008 through third Quarter 2009
NOBP-LP-4012-13; Alert and Notification System Reliability Records, dated third Quarter 2008 through third Quarter 2009

4OA2 Identification and Resolution of Problems

Lotus Notes Operator Work-around/Burdens and Control Room Deficiency Database, Selected Entries from January 2008 through December 2009
CR 09-59760; High Dewpoint on the Div 3 DG A Air Dryer; dated May 27, 2009
CR 09-59894; Valve Does Not Seat in Automatic and Leaks By; dated May 31, 2009
CR 08-47763; RWCU Filter A Outlet Strainer Flush is an Operator Burden; dated October 13, 2008
CR 09-52748; ECP 08-0687, Nitrogen Fill for Containment Electrical Penetrations Does not Fix Ops Burden; dated January 29, 2009
CR 09-62925; Performing RCIC High Point Fill and Vent is a Burden to Operations; dated August 7, 2009
CR 09-58805; Operator Burden ECP Will Miss Planning Milestone by 4 Weeks- Need Recovery Plan; dated May 7, 2009
CR 09-58698; Repeat Failures 1C11-F0025B Relief Valve Operator Burden; dated May 6, 2009
CR 08-36867; Collective Review of Control Room Deficiencies, Operator Burdens, and Workarounds; dated March 14, 2008
CR 08-40081; Operator Workaround/Burden Assessment Negative Noteworthy Item FL-SA-08-047; dated May 9, 2008
NOBP-OP-0012; Operator Work-Arounds, Burdens, and Control Room Deficiencies; Revision 1 Field Supervisor Relief/Turnover Checklist; dated November 3, 2009
Control Room Deficiencies, Operator Burdens, and Operator Workarounds Cumulative Assessment; dated November 3, 2009
Control Room Deficiencies, Operator Burdens, and Operator Workarounds Cumulative Assessment; dated October 19, 2009
SOI-E12; Residual Heat Removal System Operating Procedure—Attachment 44, “Manual Operation of RHR Flush Water Valves;” Revision 46
EOP-SPI 4.4; Condensate Transfer Alternate Injection; Revision 1
WO 200277852; Check Valve Inner Door Small Seal Uppe; dated November 18, 2008
WO 200277853; Check Valve Inner Door Large Seal Uppe; dated November 18, 2008
WO 200346967; Upper Containment Airlock Barrel; dated November 24, 2008
WO 200349166; Lower Containment Airlock Reactor Door; dated March 17, 2009
WO 200349168; Upper Containment Airlock Reactor Door; dated March 17, 2009
CR 08-49960; Containment Upper Airlock Interlock Not Functioning; dated November 24, 2008
CR 08-46581; Upper Containment Airlock Outer Door; dated September 19, 2008
SVI-T23-T1016; Containment Airlock Interlock Verification; Revision 6
GMI-0176; Containment Airlock Door Maintenance; Revision 7
CR 10-69589; Preliminary NRC Violation
Event # 45025; Initial Report of Loss of Shutdown Cooling; dated April 27, 2009
Event # 45025 Retraction; dated June 25, 2009
CR 09-66989; PY-PA-09-04 – Intervention Actions for Operational Human Performance; dated October 30, 2009

4OA3 Followup of Events and Notices of Enforcement Discretion

LER 2009003-00; Completion of Technical Specifications Required Shutdown Due to Division 2
Emergency Service Water (ESW) Inoperability

LER 2009004-00; Reactor Recirculation Pump Failure Results in Manual Reactor Protection
System Actuation

CR 09-67222; ONI-C51 Entry Due to Unplanned Flow Control Valve Movement,
dated November 4, 2009

CR 09-65972; ESW Pump B Tripped; dated October 15, 2009

Root Cause Analysis Report for CR 09-65972; dated November 17, 2009

CR 09-65830; Water Spray Observed on ESW "A" and "B" Motors; dated October 13, 2009

CR 09-66044; Reactor Scram; dated October 16, 2009

Post Scram Evaluation for CR 09-66044, dated October 22, 2009

CR 09-66011 Four Hour Notification to the NRC for Plant Shutdown; dated October 15, 2009

Event # 45440; Initial Report of Manual Reactor Scram; dated October 16, 2009

CR 09-65802; Motor Fire Pump Discharge Piping Leakage in ESW Pump House;
dated October 12, 2009

CR-09-65957; ESW "B" Motor Rigid Conduit is Noted to be Full of Water;
dated October 15, 2009

Event # 45434; Initial Report of Technical Specification Required Plant Shutdown;
dated October 15, 2009

CR 09-63793; Independent Common Cause Analysis of Recent Human Performance Events;
dated August 28, 2009

Perry Recovery Plan Initiative 1701; Improve Human Performance at the Station; undated as
provided by licensee

Perry Recovery Plan Initiative 1702; Improve Human Performance at the Station; undated as
provided by licensee

Perry Recovery Plan Initiative 6501; Improve Maintenance Leadership Oversight and
Enforcement of Standards and Expectations; undated as provided by the licensee

Perry Recovery Plan Initiative 6502; Optimize Maintenance Resources for Work Execution;
undated as provided by the licensee

Perry Nuclear Power Plant Site Recovery Plan; Updated December 16, 2009

4OA5 Other Activities

CR 09-55801; RCE Dose for the ADHR Project Exceeds Estimate; dated December 2009

4OA7 Licensee-Identified Violations

CR 09-65239; LHRA Entry Made on Incorrect RWP; dated September 30, 2009

LIST OF ACRONYMS USED

ADHR	alternate decay heat removal
ADS	automatic depressurization system
AEGTS	annulus exhaust gas treatment system
ALARA	as low as reasonably achievable
ANS	Alert and Notification System,
ARM	area radiation monitor
ASME	American Society of Mechanical Engineers
CAP	corrective action program
CEDE	committed effective dose equivalent
CFR	<i>Code of Federal Regulations</i>
CR	condition report
ECC	emergency core cooling
EDG	emergency diesel generator
EP	emergency preparedness
ERO	emergency response organization
ESW	emergency service water
FIN	Finding
HPCS	high pressure core spray
HVAC	heating, ventilation and air conditioning
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
LER	Licensee Event Report
LFMG	low frequency motor generator
LPCS	low pressure core spray
MSPI	Mitigating Systems Performance Index
NCV	non-cited violation
NEI	Nuclear Energy Institute
NOP	Nuclear Operating Procedure
NRC	Nuclear Regulatory Commission
ODCM	Offsite Dose Calculation Manual
ONI	Off-Normal Instruction
OWA	operator workaround
PI	performance indicator
RCA	radiologically controlled area
RCIC	reactor core isolation cooling
RCS	reactor coolant system
RETS	Radiological Effluent Technical Specifications
RHR	residual heat removal
RWP	radiation work permit
SCBA	self-contained breathing apparatus
SDP	Significance Determination Process
TI	Temporary Instruction
TIP	traversing in-core probe
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
URI	unresolved item
USAR	Updated Safety Analysis Report
WO	work order

M. Bezilla

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Sincerely,

/RA/

Jamnes L. Cameron, Chief
Projects Branch 6
Division of Reactor Projects

Docket No. 50-440
License No. NPF-58

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Letter to M. Bezilla from J. Cameron dated February 1, 2010.

SUBJECT: PERRY NUCLEAR POWER PLANT NRC INTEGRATED
INSPECTION REPORT 05000440/2009005

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