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

October 27, 2008

EA-07-199

Mr. Mark Bezilla
Site Vice President
FirstEnergy Nuclear Operating Company
Perry Nuclear Power Plant
P. O. Box 97, 10 Center Road, A-PY-290
Perry, OH 44081-0097

SUBJECT: PERRY NUCLEAR POWER PLANT NRC INTEGRATED INSPECTION REPORT 05000440/2008004

Dear Mr. Bezilla:

On September 30, 2008, 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 October 14, 2008, with you and 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, three NRC-identified findings and four self-revealed findings of very low safety significance were identified (Green). Five of the seven findings involved violations of NRC requirements. Additionally, three licensee-identified violations are listed in Section 4OA7 of this report. However, because of the very low safety significance and because the issues were entered into your corrective action program, the NRC is treating these issues as Non-Cited Violations (NCVs) in accordance with Section VI.A.1 of the NRC's Enforcement Policy.

If you contest the subject or severity of any NCV in this report, 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 copies 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 NRC Resident Inspectors' Office at the Perry Nuclear Power Plant.

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

Sincerely,

/RA/

Jamnes L. Cameron, Chief
Reactor Projects Branch 6

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

Enclosure: Inspection Report 05000440/2008004
w/Attachment: Supplemental Information

cc w/encl: J. Hagan, President and Chief Nuclear Officer - FENOC
J. Lash, Senior Vice President of Operations and
Chief Operating Officer - FENOC
D. Pace, Senior Vice President, Fleet Engineering - FENOC
J. Rinckel, Vice President, Fleet Oversight - FENOC
P. Harden, Vice President, Nuclear Support
Director, Fleet Regulatory Affairs - FENOC
Manager, Fleet Licensing - FENOC
Manager, Site Regulatory Compliance - FENOC
D. Jenkins, Attorney, FirstEnergy Corp.
Public Utilities Commission of Ohio
C. O'Claire, State Liaison Officer, Ohio Emergency Management Agency
R. Owen, Ohio Department of Health

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Letter to M. Bezilla from J. Cameron dated October 27, 2008

SUBJECT: PERRY NUCLEAR POWER PLANT NRC INTEGRATED INSPECTION REPORT 05000440/2008004

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-440
License No:	NPF-58
Report No:	050000440/2008004
Licensee:	FirstEnergy Nuclear Operating Company (FENOC)
Facility:	Perry Nuclear Power Plant, Unit 1
Location:	Perry, Ohio
Dates:	July 1, 2008 through September 30, 2008
Inspectors:	M. Franke, Senior Resident Inspector M. Wilk, Resident Inspector T. Taylor, Reactor Engineer J. Robbins, Reactor Engineer D. Reeser, Operations Engineer R. Murray, Reactor Engineer M. Phalen, Health Physicist R. Baker, Resident Inspector, Duane Arnold Energy Center
Observer:	E. Denison, Ohio Department of Health
Approved by:	Jamnes L. Cameron, Chief Branch 6 Division of Reactor Projects

Enclosure

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SUMMARY OF FINDINGS

IR 05000440/2008004; 07/01/2008 – 09/30/2008; Fire Protection; Operability Evaluations; Maintenance Risk Assessments and Emergent Work Control; Identification and Resolution of Problems; Event Follow-up.

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

A. Inspector-Identified and Self-Revealed Findings

Cornerstone: Initiating Event

- Green. A finding of very low safety significance was self-revealed on July 30, 2008. While performing inspection and dewatering of an underground vault area, plant workers inadvertently dropped a man-hole cover into the vault. The 15-foot vault area contained 125 Volts direct current control power conduits that supplied fault protection circuitry for switchyard breakers. The licensee entered the issue into their corrective action program.

  This finding was considered more than minor because it was related to maintenance risk assessment and risk management issues. Specifically, the licensee failed to manage risk for maintenance activities associated with the electrical switchyard that could increase the likelihood of initiating events by causing a loss of offsite power. The finding was determined through a SDP analysis to be of very low safety significance as no mitigation equipment or functions were affected. This finding had a cross-cutting aspect in the area of Human Performance as defined in IMC 0305 H.4(a), because the organization failed to ensure the use of human error prevention techniques commensurate with the risk of the assigned task. No violation of NRC requirements occurred. (Section 4OA3.2)

- Green. A finding of very low safety significance was self-revealed on June 28, 2008, when high radiation alarms for all four main steam lines were received in the control room during a plant power maneuver. Specifically, maintenance technicians failed to adhere to procedures and manipulated a hydrogen water chemistry control system while performing a surveillance test associated with the plant off-gas system. The off-gas system surveillance test procedure did not address operation of the hydrogen water chemistry control system and the technicians were not trained to operate the system. As part of their immediate corrective actions, the licensee corrected the system lineup to reduce radiation levels and entered the issue into their corrective action program.

  This finding was considered more than minor because the manipulation of plant systems that are different from those specified in the authorized work procedure would become a more significant safety concern if left uncorrected. In this case, the finding led to an unexpected increase in radiation levels in areas accessible to plant personnel and was associated with the operating equipment lineup of the configuration control attribute of

the Initiating Events Cornerstone and adversely affected the cornerstone objective of limiting the likelihood of events that upset plant stability. The finding was determined through a SDP analysis to be of very low safety significance as no mitigation equipment or functions were affected and no actual increase in personnel exposure occurred. This finding has a cross-cutting aspect in the area of Human Performance as defined in IMC 0305 H.4(b), because the organization failed to ensure that personnel do not proceed with a task in the face of uncertainty. No violation of NRC requirements occurred. (Section 4OA3.3)

Mitigating System

- Green. The inspectors identified a finding of very low safety significance and an associated NCV of 10 CFR 50.65(a)(4) for failure to assess and manage the risk associated with maintenance activity affecting the low pressure core spray system. Specifically, the licensee removed floor plugs in the auxiliary building and failed to implement risk control measures to assure operability of low pressure core spray. As part of their immediate corrective actions, the licensee personnel re-installed building floor plugs and returned low pressure core spray to an operable status.

  The finding was considered more than minor because the licensee failed to prescribe significant compensatory measures for external conditions; and if the practice were left uncorrected, the issue would become a more significant safety concern. The finding was of very low safety significance because the incremental core damage frequency associated with the activity was less than 1×10^{-6}. This finding has a cross-cutting aspect in the area of Human Performance as defined in IMC 0305 H.3(a), because the organization failed to adequately plan work activities that are associated with risk. (Section 1R13.1)

- Green. The inspectors identified a finding of very low safety significance and a NCV of 10 CFR 50.65(a)(4) for failure to implement a procedurally-required risk management activity for a safety system protected train. The licensee failed to provide required management oversight of work on emergency closed cooling 'A' while the plant was in Yellow Risk. The licensee entered the issue into their corrective action program.

  The finding was considered more than minor because the licensee failed to effectively manage significant compensatory measures for an elevated risk condition; and if the practice were left uncorrected, the issue would become a more significant safety concern. The finding was of very low safety significance, because the incremental core damage frequency associated with the activity was less than 1×10^{-6}. This finding has a cross-cutting aspect in the area of Human Performance as defined by IMC 0305 H.3(a), because the organization failed to adequately plan work activities that are associated with risk. (Section 1R13.2)

- Green. The inspectors identified a finding of very low safety significance and an associated NCV of the Perry Nuclear Power Plant Operating License Condition C(6). During a maintenance activity, licensee personnel degraded a fire barrier in a manner that was contrary to the procedural requirements of the Perry Plant Fire Protection Program. As part of their immediate corrective action, the licensee restored the fire barrier and entered the issue into their corrective action program.

The inspectors determined that the performance deficiency was more than minor in accordance with IMC 0612, Appendix B, "Issue Disposition Screening," because the finding was associated with protection against external factors attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, by the inappropriate use of fixed impairments on the fire doors between the diesel fire pump room and the emergency service water pumphouse, the licensee removed a fire barrier which could impact safety-related equipment. The finding was determined to be of very low safety significance during a Phase 2 SDP review. This finding has a cross-cutting aspect in the area of Human Performance as defined by IMC 0305 H.4(a), because the licensee did not ensure that appropriate human error prevention techniques were used. (Section 1R05)

- Green. A finding of very low safety significance and associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was self-revealed on August 4, 2008, when contract workers bored a hole into a safety-related structure in an inappropriate location. The workers did not use documented instructions, procedures, or drawings when performing the work. As part of their immediate corrective actions, the licensee conducted worker training and entered the issue into their corrective action program.

  The finding was determined to be more than minor because the finding was associated with the design control attribute of Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee initiated work on a seismically qualified structure in the absence of an approved work package and degraded the structure. The finding was determined to be of very low safety significance because it did not result in safety system inoperability. This finding had a cross-cutting aspect in the area of Human Performance as defined by IMC 0305 H.4.(a), because the licensee failed to communicate human error prevention techniques through a pre-job brief and personnel proceeded in the face of unexpected circumstances. (Section 1R15)

Barrier Integrity

- Green. A self-revealed finding of very low safety significance and an associated NCV of 10 CFR Part 50 Appendix B, Criterion 5 ," Procedures," was identified on June 1, 2008, when a containment airlock door seal failed during routine operations. On March 26, 2008, the licensee failed to implement airlock maintenance procedures appropriate to the circumstances and this led to a failure of the containment upper airlock outer door seal. As part of their corrective actions, the licensee (1) conducted worker training; (2) planned to revise the airlock maintenance procedures to include additional guidance; (3) planned to increase maintenance frequency for the airlocks; and (4) planned to reintroduce a requirement to grease the door mechanisms.

  The finding was determined to be more than minor because it was associated with the Procedure Quality attribute of the Barrier Integrity Cornerstone and affected the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. The inspectors determined that the finding was of very low safety significance because the upper airlock inner door remained closed and the finding did not represent an actual

open pathway in the physical integrity of reactor containment. This finding has a cross-cutting aspect in the area of Human Performance as defined in IMC 0305, H.2(c), Resources, because the licensee did not ensure that procedures were complete and were adequate to assure nuclear safety. (Section 4OA2)

B. Licensee-Identified Violations

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

REPORT DETAILS

Summary of Plant Status

The plant began the inspection period at 100 percent power. On July 1, 2008, operators reduced reactor power to 67 percent for planned maintenance and testing. The plant returned to full power operation on July 2, 2008. On August 22, 2008, operators reduced reactor power to about 93 percent to manage main condenser operations during warm weather conditions. The plant returned to full power the next day. On September 14, 2008, operators reduced reactor power to about 95 percent again due to warm weather and returned the plant to full power on the same day. On September 20, 2008, operators reduced reactor power to about 60 percent for planned maintenance and testing. The plant returned to full power operation on September 23, 2008. With the exception of planned downpowers for routine surveillance testing and rod sequence exchanges, the plant remained at 100 percent power for the remainder of the inspection period.

1. REACTOR SAFETY

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

1R01 Adverse Weather Protection (71111.01)

.5 Readiness For Impending Adverse Weather Condition – Severe Thunderstorm Watch/Sighted Waterspout

a. Inspection Scope

Since thunderstorms with potential tornados and high winds were forecast in the vicinity of the facility for the week of July 21, 2008, the inspectors reviewed the licensee's overall preparations/protection for the expected weather conditions. The inspectors walked down the ESW system, in addition to the licensee's emergency alternating current (AC) power systems, because their safety-related functions could be affected or required as a result of high winds or tornado-generated missiles or the loss of offsite power. The inspectors evaluated the licensee staff's preparations against the site's procedures and determined that the staff's actions were adequate. During the inspection, the inspectors focused on plant specific design features and the licensee's procedures used to respond to specified adverse weather conditions. The inspectors also toured the plant grounds to look for any loose debris that could become missiles during a tornado. The inspectors evaluated operator staffing and accessibility of controls and indications for those systems required to control the plant. Additionally, the inspectors reviewed the Updated Final Safety Analysis Report (UFSAR) and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant specific procedures. The inspectors also reviewed a sample of corrective action program (CAP) items to verify that the licensee identified adverse weather issues at an appropriate threshold and dispositioned them through the CAP in accordance with station corrective action procedures. Documents reviewed are listed in the Attachment.

This inspection constituted one sample for readiness for impending adverse weather conditions as defined in Inspection Procedure (IP) 71111.01-05.

b. Findings

No findings of significance were identified.

.8 Readiness For Impending Adverse Weather Condition – Extreme Heat/Drought Conditions

a. Inspection Scope

The inspectors performed a detailed review during the week of July 14, 2008, of the licensee's procedures and preparations for operating the facility during an extended period of time when ambient outside temperature was high and the ultimate heat sink was experiencing elevated temperatures. The inspectors focused on plant specific design features and implementation of the procedures for responding to or mitigating the effects of these conditions on the operation of the emergency service water (ESW) system and other selected systems. Inspection activities included a review of the licensee's adverse weather procedures, daily monitoring of the off-normal environmental conditions, and that operator actions specified by plant specific procedures were appropriate to ensure operability of the normal and emergency cooling systems. Documents reviewed are listed in the Attachment.

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

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

.1 Quarterly Partial System Walkdowns

a. Inspection Scope

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

- Division 3 diesel generator system during the week of August 25, 2008;
- containment vessel and drywell purge system prior to welding replacement of local leak rate test penetration V313-V314 test connection valve 1M14F0602, during the week of September 22, 2008; and
- high pressure core spray (HPCS) during a Division 1 outage during the week of September 29, 2008.

The inspectors selected these systems based on their risk significance relative to the Reactor Safety Cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could impact the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures, system diagrams, UFSAR, 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 CAP with the appropriate significance characterization. Documents reviewed are listed in the Attachment.

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

b. Findings

No findings of significance were identified.

.2 Semi-Annual Complete System Walkdown

a. Inspection Scope

During the months of July and August 2008 the inspectors performed a complete system alignment inspection of the ESW system to verify the functional capability of the system. This system was selected because it was considered both safety-significant and risk-significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment lineups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that ancillary equipment or debris did not interfere with equipment operation. A review of a sample of past and outstanding WOs was performed to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the CAP database to ensure that system equipment alignment problems were being identified and appropriately resolved. Documents reviewed are listed in the attachment.

These activities constituted one sample for a complete system walkdown 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 Zones 1CC-4 A,C,D, and E; Control Complex elevation 638' 6";
- Fire Zones 1CC-5 A, B and C; Control Complex elevation 654' 6";
- Emergency Service Water pumphouse;
- Fire Zone 1DG-1A, Diesel Generator Building 620'6" – Division 2 Diesel Generator Room;
- Fire Zone 1DG-1B, Diesel Generator Building 620'6" – Division 3 Diesel Generator Room;
- Fire Zone 1DG-1C, Diesel Generator Building 620'6" – Division 1 Diesel Generator Room; and
- Fire Zone 1DG-1D, Diesel Generator Building 620'6" – Hallway.

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 had implemented adequate compensatory measures for out of service, degraded or inoperable fire protection equipment, systems, or features in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to impact equipment which could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the Attachment, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed, that transient material loading was within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's CAP. Documents reviewed are listed in the attachment.

These activities constituted seven quarterly samples for fire protection as defined in IP 71111.05-05.

b. Findings

Introduction: The inspectors identified a finding of very low safety significance and an associated NCV of the Perry Nuclear Power Plant Operating License Condition C(6), when licensee personnel degraded a fire barrier and failed to adhere to fire protection program procedures.

Description: On August 18, 2008, while performing a walkdown of the ESW system in the ESW pumphouse, the inspectors noticed that the double-door access to the diesel fire pump (DFP) room was propped open. One of the doors was tied open with a rope and the other was propped open with scaffolding material. Workers were in the process of moving scaffolding and other material in and out of the DFP room for planned maintenance. The doors had warning signs identifying them as fire-safety barriers and also stated the requirement to notify the control room prior to impairing them. The inspectors questioned the workers whether they were meeting the requirements for impairing the door. The workers informed the inspectors that it was their understanding that as long as personnel were in the vicinity of the door, they could impair the door open.

The inspectors discussed this issue with the control room operators and inquired whether the control room was aware of this specific impairment. Control room personnel were not aware of an impairment authorized for the DFP door.

The inspectors continued the inspection and were informed by the maintenance services supervisor that fixed fire impairments were no longer approved without proper authorization. Licensee personnel removed the fixed impairments, and the doors were subsequently held open as-needed by personnel in accordance with plant procedures.

The inspectors confirmed with the Secondary Alarm Station, which maintained a list of current fire impairments, that the fixed impairments for the DFP room were not requested and not approved in accordance with plant procedures. The inspectors also confirmed with the fire marshal that there was not an approved impairment for the DFP fire doors.

The licensee further determined that maintenance personnel had left the area while the fire doors were impaired and, as such, the degraded fire barrier condition was left unattended.

Analysis: The inspectors determined that the licensee's failure to follow the procedural requirements of the Perry Plant Fire Protection Program was a performance deficiency warranting a significance evaluation.

The inspectors determined that the performance deficiency was more than minor in accordance with IMC 0612, Appendix B, "Issue Disposition Screening," because the finding was associated with protection against external factors attribute of the Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, by the inappropriate use of fixed impairments on the fire doors between the DFP room and the ESW pumphouse, licensee personnel removed a fire barrier affecting the safety-related building.

The inspectors evaluated the finding using IMC 0609, Appendix F, "Fire Protection Significance Determination Process." Because the finding involved fire doors, it was assigned to the Fire Confinement finding category in accordance with table 1.1.1. The finding was then assigned a High degradation rating in accordance with step 1.2. Guidance in IMC 0609, Appendix F, Attachment 2, table A2.2 was also used to make this determination. Step 1.3 then directed the inspectors to step 1.4 based on the Fire Confinement category and High Degradation rating. In step 1.4, with an assumed <3-day duration and a Generic Fire Frequency of 3E-2 based on a diesel generator building, the resultant ΔCDF (core damage frequency) value of 3E-4 required a Phase 2 analysis.

The inspectors performed a Phase 2 evaluation using IMC 0609, Appendix F, "Fire Protection SDP." The inspectors determined that there was not a credible fire scenario relating to the performance deficiency associated with the blocked open fire door for the DFP room. The inspectors evaluated fire scenarios for the diesel fire pump and its associated fuel supply using a bounding 10 MegaWatt (MW) fire (the uppermost fire bin size from IMC 0609, Appendix F, Table 2.3.1, "Mapping of General Fire Scenario Characterization Type Bins to Fire Intensity Characteristics"). For evaluating fire scenarios involving radiant heat, the inspectors used IMC 0609, Appendix F,

Table 2.3.2, “Calculated Values (in feet) for Use in the Ball and Column Zone of Influence Chart for Fires in an Open Location from Walls.” The inspectors noted that there was no equipment important to safety outside the fire door to the diesel fire pump room within the radial zone of influence for a 10 MW fire. In addition, there was no equipment inside the fire door within the radial zone of influence for a 200 kW fire (the 98th percentile bin for a small electrical fire or solid and transient combustible fire). The inspectors noted that there was no equipment directly above the door which could be adversely affected by a plume originating near the fire door. The inspectors also evaluated the potential for a damaging hot gas layer to develop from a 10 MW fire using a CFAST (Consolidated Fire and Smoke Transport) fire simulation (publicly available from www.nist.gov). Based on the simulation results, the inspectors determined that a hot gas layer of approximately 588 degrees Fahrenheit (°F) could develop over the period of 30 minutes. Such a temperature was below the damage threshold (625 °F) for thermoset cables such as those used at the Perry Nuclear Power Plant. The CFAST simulation was based on the ESW pump house having dimensions of 103 feet by 55 feet by 65 feet high, and that the ESW pumphouse had five louvered ventilation openings of 7 feet wide by 5 feet high (four located 35 feet above the floor and one located 25 feet above the floor), four louvered ventilation openings of 7 feet wide by 5.5 feet high (located 50 feet above the floor). The inspectors assumed an opening fraction of 0.1 for the louvered ventilation openings to be representative of closed ventilation louvers. Mechanical ventilation, which would provide additional cooling, was not considered. The CFAST default settings for the fuel (i.e., methane with a 0.3 radiative fraction) were used for the 10 MW fire specified. As such, the inspectors considered the issue to be of very low safety significance (i.e., Green) because there was not a credible fire scenario associated with the performance deficiency.

This finding has a cross-cutting aspect in the area of Human Performance, H.4(a), because the licensee did not ensure that appropriate human error prevention techniques were used. Specifically, the pre-job brief did not adequately detail the appropriate procedural requirements for fire impairments.

Enforcement: Perry Nuclear Power Plant Operating License Condition C(6) states, in part, that FENOC shall implement and maintain in effect all provisions of the approved fire protection program. As stated in Perry Administrative Procedure (PAP)-1910, "Fire Protection Program", Revision 15, work and activities in the plant which present a potential for creating fire hazards are controlled by this and other plant administrative procedures/instructions. The control processes include, among other things, impairment permits. Fire Protection Instruction (FPI)-A-C01, "Fire Protection Program Control Processes," outlines the specific procedure to request fire impairments. Contrary to the operating license condition as implemented through the procedures above, the licensee utilized fixed fire door impairments without proper authorization or controls. Because this violation was of very low safety significance and it was entered into the licensee’s CAP as CR 08-44968, this violation is being treated as NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 05000440/2008004-01).

1R06 Flood Protection Measures (71111.06)

.1 Internal Flooding

a. Inspection Scope

The inspectors reviewed selected risk important plant design features and licensee procedures intended to protect the plant and its safety-related equipment from internal flooding events. The inspectors reviewed flood analyses and design documents, including the UFSAR, engineering calculations, and abnormal operating procedures to identify licensee commitments. The specific documents reviewed are listed in the Attachment to this report. In addition, the inspectors reviewed licensee drawings to identify areas and equipment that may be affected by internal flooding caused by the failure or misalignment of nearby sources of water, such as the fire suppression or the circulating water systems. The inspectors also reviewed the licensee's corrective action documents with respect to past flood-related items identified in the CAP to verify the adequacy of the corrective actions. The inspectors performed a walkdown of the auxiliary building and the modification associated with the alternate decay heat removal (ADHR) installation during the weeks of August 4 and 11, 2008, 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. Documents reviewed are listed in the attachment.

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

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program

.1 Resident Inspector Quarterly Review (71111.11Q)

a. Inspection Scope

On July 23, 2008, 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;
- 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.

This inspection constitutes one quarterly sample for the licensed operator requalification program as defined in IP 71111.11.

b. Findings and observations

After completing a training cycle for High Intensity Training, the licensee revised the Plant Emergency Instruction flow charts to Emergency Operating Procedures in order to be in alignment with industry standards. The licensee planned to fully implement the new Emergency Operating Procedures after completion of the training cycle.

1R12 Maintenance Effectiveness (71111.12)

.1 Routine Quarterly Evaluations (71111.12Q)

a. Inspection Scope

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

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

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

This inspection constitutes one quarterly sample for maintenance effectiveness 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)

.1 Maintenance Risk Assessments and Emergent Work Control

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:

- suppression pool level instrument 'A' during the week of July 7, 2008;
- diesel fire pump battery replacement during the week of July 28, 2008;
- auxiliary building modifications during the week of August 4, 2008; and
- motor feedwater pump during the week of August 4, 2008.

These activities were selected based on their potential risk significance relative to the Reactor Safety Cornerstone. As applicable for each activity, the inspectors verified that risk assessments were performed as required by 10 CFR 50.56(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. Documents reviewed are listed in the Attachment.

These activities constituted four samples for maintenance risk assessments and emergent work controls as defined in IP 71111.13-05.

b. Findings

(1) Introduction: The inspectors identified a finding of very low safety significance and an associated NCV of 10 CFR 50.65(a)(4) for failure to implement compensatory measures for a risk management activity. The licensee failed to implement prescribed risk controls associated with work affecting the low pressure core spray (LPCS) system.

Description: On August 6, 2008, during a plant tour, the inspectors were verifying the licensee’s configuration control and compensatory measures for removal of auxiliary building floor plugs following a tornado warning for Lake County earlier that morning. Control room operators provided the inspectors with Engineering Evaluation Requests p(EER) 600250251, 600308906, and 600472744 for the floor plug removal, which provided the operators guidance and compensatory measures for addressing auxiliary building and LPCS operability. The inspectors determined that the following hatch plugs were removed: 620' West elevation; 620' East elevation; and 599' East elevation. The inspectors noted that the three EERs did not allow the concurrent removal of all three plugs and informed the control room operators of this observation. After a review of the configuration against the engineering evaluations, the Shift Manager declared LPCS inoperable and ordered the replacement of two of the building floor plugs.

The inspectors observed that the removal of the 620' East and 599' East elevation floor plugs, which are above the LPCS pump motor, provided a direct vertical path to the LPCS pump. In the near vicinity of the floor plug opening at ground level was a building roll-up door that had no unique missile shield function as specified by Updated Safety Analysis Report (USAR) Table 3.5-6. The inspectors considered that, during a high wind event, a missile could enter the roll-up door that was near the floor plug opening. From that location, the missile could drop unhindered onto the LPCS pump motor. The inspectors also noted that workers had left a significant amount of equipment and materials in the vicinity of the openings above the LPCS pump.

As stated in PAP-0205, "Operability of Plant Systems," section 3.1, Revision 18, administrative controls are those actions taken to control system or component configuration in accordance with TS action requirements. The licensee did not have any administrative controls delineated for this specific floor plug configuration for tornado or high wind warnings. The licensee evaluation for the configuration of all three floor plugs removed, update to EER 600472744, stated that LPCS should be conservatively declared inoperable during high wind warnings. The licensee documented the issue in CR 08-44524.

Analysis: The inspectors determined that the failure to implement administrative controls for missile protection for a risk management activity was a performance deficiency. The finding was determined to be more than minor because it was related to risk management issues and met the guidance of IMC 0612, Appendix B, Section 3, question (2) and question (5)(i), dated September 20, 2007. Specifically, the licensee failed to provide administrative controls related to work affecting LPCS.

The inspectors, using IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management SDP," Flowchart 2, dated May 19, 2005, determined that the finding was of very low safety significance. The time that the plant was exposed to high wind warnings was approximately four hours. The incremental core damage probability for the duration of the procedure and for the critical step was less than 1×10^{-6}. This finding had a cross-cutting aspect in the area of Human Performance as defined in IMC 0305, H.3(a), because the organization failed to adequately plan work activities that are associated with risk.

Enforcement: 10 CFR 50.65(a)(4) requires the licensee to assess and manage the risk associated with removing the barriers around the LPCS system. Contrary to this, the licensee failed to manage the risk associated with the floor plug configuration in the auxiliary building in that it was not in accordance with any of the licensee risk evaluations, which resulted in not having appropriate administrative controls for high winds. Because the violation was of very low safety significance and the issue was entered into the licensee's CAP (CR 08-44524), this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy (NCV 05000440/2008004-02).

(2) Introduction: The inspectors identified a finding of very low safety significance and an associated NCV of 10 CFR 50.65(a)(4) for failure to implement a procedurally-required risk management activity for a protected train. The licensee performed work on emergency closed cooling (ECC) 'A' when it was considered a protected train during a Yellow Risk plant condition.

Description: On June 11, 2008, during a plant tour, the inspectors were verifying PNPP No. 10244, "Protected Equipment Posting Checklist for RCIC Outage (Yellow)," dated June 19, 2006, and observed work being performed on ECC 'A' heat exchanger near the isolation valves. The ECC 'A' was listed as a protected train on checklist PNPP No. 10244. The inspectors determined that the shift manager was not aware of the activity and the engineers did not realize the component they were working on was protected for risk-management reasons. After the inspectors notified the shift manager of the work, the shift manager then provided the required controls to the activity supervisor and work on ECC 'A' was authorized with the appropriate restraints. The licensee also revised the protected train posting requirements for ECC 'A' to include the affected components. The licensee later determined that the work was authorized 3 days earlier, but that this was before the plant entered Yellow Risk and before ECC 'A' was considered protected.

Nuclear Operating Procedure (NOP)-OP-1007, "Risk Determination," Section 4.16.3, Revision 5, states for protected equipment that, "work is prohibited in these areas, unless authorized." It further states, "Individuals needing to perform work in these posted areas shall contact the Shift Manager or designee for permission to enter these areas to perform work." In addition, licensee procedure PYBP-POS-2-2, "Protected Equipment Postings," Section 4.3.1, Revision 6, further states that, "Work should not normally be scheduled in posted areas as part of a routine workweek." The evolution witnessed by the inspectors was related to a scheduled task of heat exchanger testing. The licensee documented the issue in the CAP as CR 08-42164.

The inspectors noted other similar risk management issues during the inspection period and were concerned whether the identified issues were representative of a programmatic issue. In one example, on July 1, 2008, the inspectors identified that the licensee had failed to post the annulus exhaust gas treatment system (AEGTS) 'A' as protected equipment prior to removing AEGTS 'B' from service at approximately 3:30 a.m. for scheduled maintenance. The inspectors questioned the shift manager at about 7:30 a.m. on July 1, 2008, to determine whether AEGTS 'A' was posted as a protected train. The shift manager determined that AEGTS 'A' was not posted, but said that the subsystem should be posted as protected in accordance with PYBP-POS-2-2. Section 4.1.1 of PYBP-POS-2-2, stated that, "When a component is out-of-service for greater than four hours and failure of the remaining component would cause entry into Technical Specification (TS) 3.0.3," that protected equipment postings should be used. In accordance with Perry TS 3.6.4.3, the loss of both trains of AEGTS requires entry into limiting condition for operation (LCO) TS 3.0.3. The shift manager ordered the posting of AEGTS 'A'. At about 10:00 a.m., the inspectors performed a follow-up field walkdown to verify the new postings and found that, while operators had subsequently posted AEGTS 'A' in the control room, they had not posted the AEGTS 'A' room in the field. The operators had considered the postings complete. The inspectors noted that this was also contrary to PYBP-POS-2-2. The inspectors informed the shift manager of the observation. At about 10:45 a.m., licensee personnel completed postings for AEGTS 'A'.

Analysis: The inspectors determined that the failure to implement a procedurally-required risk-management activity for the ECC 'A' protected train was a performance deficiency. The finding was determined to be more than minor because it was related to risk management issues and met the guidance of IMC 0612, Appendix B, Section 3, question (2) and question (5)(i), dated September 20, 2007. Specifically, the

licensee failed to either prohibit work or provide required management oversight of work on ECC 'A' while the plant was in Yellow Risk.

The inspectors, using IMC 0609, Appendix K, "Maintenance Risk Assessment and Risk Management SDP," flowchart 2, dated May 19, 2005, determined that the finding was of very low safety significance. The time that the plant was in Yellow Risk was less than one day, and ECC 'A' was determined to be operable. The incremental core damage probability for the duration of the procedure and for the critical step was less than 1×10^{-6}. This finding had a cross-cutting aspect in the area of Human Performance as defined in IMC 0305 H.3(a), because the organization failed to adequately plan work activities that are associated with risk.

Enforcement: 10 CFR 50.65(a)(4) requires the licensee to manage the increase in risk resulting from maintenance activities. Contrary to this, the inspectors identified that work was in progress on ECC 'A' when that sub-system was posted as a protected train and the required administrative controls were not met. Because the violation was of very low safety significance and the issue was entered into the licensee's CAP (CR 08-42164), this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy (NCV 05000440/2008004-03).

1R15 Operability Evaluations (71111.15)

.1 Operability Evaluations

a. Inspection Scope

The inspectors reviewed the following issues:

- residual heat removal (RHR) 'C' pump minimum flow valve during the week of July 21, 2008;
- Divisional Class 1E safety batteries during the week of August 11, 2008;
- ESW 'B' flange material during the week of September 1, 2008;
- ADHR core bore during August and September;
- ESW building ventilation dampers during the week of September 22, 2008;
- reactor water clean-up (RWCU) system through-wall leakage downstream of the regenerative heat exchanger during the week of September 22, 2008; and
- service water make-up to the cooling tower flow path isolation capability while the inboard isolation valve, OP41F420, was declared inoperable during the week of September 22, 2008.

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.

These inspections constitute seven samples for operability evaluations as defined in IP 71111.15.-05.

b. Findings

Introduction: A finding of very low safety significance and an associated NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was self-revealed for the failure to have documented instructions, procedures, or drawings appropriate to the circumstances. The failure to have an approved work package prior to boring holes in a seismically qualified structure was not in accordance with Perry's work control procedures.

Description: On August 4, 2008, during dayshift, contractors performing work associated with the ADHR project prepared to bore a 14-inch hole in the floor of the 599' level of the auxiliary building. Holes were being drilled in this area in preparation for pipe installations that were scheduled at a later date. Upon arrival to the work site, the workers began the set-up process for the boring machine and discovered that some of the material pre-staged for the job was incorrect. The supervisor then directed the workers to set-up and bore an 8-inch hole which was located nearby. In preparation for drilling operations, the floor had been marked-up with representations of the rebar present in the floor and the locations for the holes on this level associated with the ADHR project.

The workers placed the boring machine over a crosshair on the floor that was marked "CL AUX-8" and "CL AUX-D." These marks indicated the intersection of the centerline of columns 8 and D in the auxiliary building. The workers assumed that this mark was the center for the 8-inch hole. This was not the correct location for the 8-inch hole. The correct location for the 8-inch hole was marked, but was five to six feet away.

The incorrect positioning of the boring equipment was discovered during shift turnover on August 4. As supervision began looking into this event they discovered that the work package for the boring of the 8-inch hole had not been released. The only boring work that had an approved work package was for the 14-inch holes. The 8-inch hole had been bored without an approved work package.

Analysis: The inspectors determined that boring holes in a seismically qualified structure without an approved work package was contrary to Perry's work control practices and was a performance deficiency.

The finding was determined to be more than minor because the finding was associated with the design control attribute of Mitigating Systems Cornerstone and affected the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee initiated work on a seismically qualified structure in the absence of an approved work package. This instance resulted in the boring of a hole in a location other than that which was planned, thus placing the structure in an unanalyzed condition. The licensee

subsequently conducted an analysis to demonstrate operability for the current configuration.

The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, “Significance Determination Process,” Attachment 0609.04, “Phase 1 - Initial Screening and Characterization of findings,” Table 4a for the Mitigating System Cornerstone. The inspectors answered yes to the question regarding design or qualification deficiencies confirmed not to result in loss of operability. Therefore this finding screens as Green, very low safety significance.

This finding has a cross-cutting aspect in the area of human performance because personnel failed to hold an adequate pre-job brief, did not have proper documentation, and proceeded in the face of unexpected circumstances. H.4(a)

Enforcement: Criterion V, “Instructions, Procedures, and Drawings,” of 10 CFR Part 50, Appendix B, requires, in part, that activities affecting quality be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and that they be accomplished in accordance with these instructions, procedures, or drawings. Contrary to this, on August 4, 2008, the licensee failed to have work instructions appropriate to the circumstances prior to initiating work. Specifically, the licensee initiated work on a seismically qualified structure in the absence of an approved work package. Because this violation was of very low safety significance and it was entered into the licensee’s CAP as CR 08-4431, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 05000440/2008004-04).

1R19 Post-Maintenance Testing (71111.19)

.1 Post-Maintenance Testing

a. Inspection Scope

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

- suppression pool 'A' level instrument line testing during the week of July 14, 2008;
- AEGTS testing during the weeks of July 14 and 28, 2008;
- RHR 'C' leak indication during the weeks of August 18 and 29, 2008;
- RHR 'C' minimum flow pressure trip unit during the week of September 15, 2008;
- service water system make-up to cooling tower inboard isolation valve troubleshooting and repair following an in-service testing surveillance failure during the week of September 22, 2008; and
- containment atmosphere monitoring system testing requirements following control room recorder replacements during the week of September 22, 2008.

These activities were selected based upon the structure, system, or component's ability to impact risk. The inspectors evaluated these activities for the following (as applicable): the effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed; acceptance criteria were clear and demonstrated

operational readiness; test instrumentation was appropriate; tests were performed as written in accordance with properly reviewed and approved procedures; equipment was returned to its operational status following testing (temporary modifications or jumpers required for test performance were properly removed after test completion), and test documentation was properly evaluated. The inspectors evaluated the activities against TS, the UFSAR, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with post-maintenance tests to determine whether the licensee was identifying problems and entering them in the CAP and that the problems were being corrected commensurate with their importance to safety. Documents reviewed are listed in the Attachment.

This inspection constitutes six samples for post-maintenance testing as defined in IP 71111.19.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

.1 Surveillance Testing

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:

- suppression pool level 'A' testing during the week of June 30, 2008, (routine);
- inservice ECC pump and valve inspection during the week of August 4, 2008, (IST);
- emergency diesel generator (EDG) exhaust hallway inspection during the week of August 4, 2008, (routine);
- testing of the diesel driven fire pump ventilation switch during the week of August 25, 2008, (routine) ;
- average power range monitor (APRM) channel calibration testing during the week of August 25, 2008, (routine) ;
- Division 3 EDG testing during the week of September 15, 2008, (routine);
- APRM 'A' channel calibration testing during the week of September 15, 2008, (routine); and
- oscillating power range monitor (OPRM) channel 'A' functional testing during the week of September 22, 2008, (routine).

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

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

Documents reviewed are listed in the Attachment to this report.

This inspection constituted one in-service testing sample and seven routine surveillance testing samples as defined in IP 71111.22.

b. Findings:

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

.1 Training Observation

a. Inspection Scope

The inspector observed a simulator training evolution for licensed operators on September 15, 2008, which required emergency plan implementation by a licensee operations crew. This evolution was planned to be evaluated and included in performance indicator (PI) data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the post-evolution critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that the licensee evaluators noted the same issues and entered them into the CAP. As part of the inspection, the inspectors reviewed the scenario package and other documents listed in the Attachment to this report.

This inspection constituted one sample of a training observation as defined in IP 71114.06-05.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

.1 Review of Licensee PIs for the Occupational Exposure Cornerstone

a. Inspection Scope

The inspectors reviewed the licensee's Occupational Exposure Control Cornerstone PIs to determine whether the conditions resulting in any PI occurrences had been evaluated and whether identified problems had been entered into the licensee's CAP for resolution.

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

b. Findings

No findings of significance were identified.

.2 Plant Walkdowns and Radiation Work Permit Reviews

a. Inspection Scope

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

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

The inspectors also reviewed the licensee's physical and programmatic controls for highly activated and/or contaminated materials (non-fuel) stored within the spent fuel pool or other storage pools.

This inspection constitutes one sample for plant walkdowns and radiation work permit reviews as defined in IP 71121.01-5.

b. Findings

No findings of significance were identified.

.3 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed a sample of the licensee's self-assessments, audits, licensee even reports (LERs), and special reports related to the access control program to verify that identified problems were entered into the CAP for resolution.

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

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

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

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

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

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

The inspectors reviewed licensee documentation packages for all PI events occurring since the last inspection to determine if any of these PI events involved dose rates in

excess of 25 R/hr at 30 centimeters or in excess of 500 R/hr at 1 meter. Barriers were evaluated for failure and to determine if there were any barriers left to prevent personnel access. Unintended exposures exceeding 100 millirem total effective dose equivalent (or 5 rem shallow dose equivalent or 1.5 rem lens dose equivalent) were evaluated to determine if there were any regulatory overexposures or if there was a substantial potential for an overexposure.

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

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

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

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

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

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

b. Findings

No findings of significance were identified.

.5 Radiation Worker Performance

a. Inspection Scope

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

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

b. Findings

No findings of significance were identified.

.6 Radiation Protection Technician Proficiency

a. Inspection Scope

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

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

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Unplanned Scrams per 7000 Critical Hours

a. Inspection Scope

The inspectors sampled licensee submittals for the Unplanned Scrams per 7000 Critical Hours PI for the period from 3rd quarter 2007 through the 2nd quarter 2008. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI 99-02, "Regulatory Assessment PI Guideline," Revision 5, was used. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports and NRC inspection reports for the period of 3rd quarter 2007 through the 2nd quarter 2008 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. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

.4 Safety System Functional Failures

a. Inspection Scope

The inspectors sampled licensee submittals for the Safety System Functional Failures PI for the period from the 3rd quarter 2007 through the 2nd quarter 2008. 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 PI Guideline," Revision 5, and NUREG-1022, "Event Reporting Guidelines 10 CFR 50.72 and 50.73" definitions and guidance, were used. The inspectors reviewed the licensee's operator narrative logs, operability assessments, maintenance rule records, maintenance WOs, issue reports, event reports and NRC integrated inspection reports for the period of July 1, 2007 through June 30, 2008, 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. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

.9 Mitigating Systems Performance Index - Cooling Water Systems

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index (MSPI) - Cooling Water Systems PI for the period from 3rd quarter 2007 through the 2nd quarter 2008. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI 99-02, "Regulatory Assessment PI Guideline," Revision 5, was used. The inspectors reviewed the licensee's operator narrative logs, issue reports, MSPI derivation reports, event reports and NRC integrated inspection reports for the period 3rd quarter 2007 through the 2nd quarter 2008 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 sample for MSPI cooling water systems as defined in IP 71151-05.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety

.10 Reactor Coolant System Specific Activity

a. Inspection Scope

The inspectors sampled licensee submittals for the Reactor Coolant System Specific Activity PI for Perry Station Unit 1 for the period from the third quarter 2007 through the

second quarter 2008. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI 99-02, "Regulatory Assessment PI Guideline," Revision 5, was used. The inspectors reviewed the licensee's reactor coolant system chemistry samples, TS requirements, issue reports, event reports and NRC Integrated Inspection Reports for the period of July 2007 through August 2008 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 reactor coolant system sample. Documents reviewed are listed in the Attachment to this report.

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

b. Findings

No findings of significance were identified.

.15 Occupational Exposure Control Effectiveness

a. Inspection Scope

The inspectors sampled licensee submittals for the Occupational Radiological Occurrences PI for the period from the 4th quarter 2007 through the 2nd quarter 2008. To determine the accuracy of the PI data reported during those periods, PI definitions and guidance contained in the NEI 99-02, "Regulatory Assessment PI Guideline," Revision 5, was used. The inspectors reviewed the licensee's assessment of the PI for occupational radiation safety to determine if indicator-related data was adequately assessed and reported. To assess the adequacy of the licensee's PI data collection and analyses, the inspectors discussed with radiation protection staff, the scope and breadth of its data review, and the results of those reviews. The inspectors independently reviewed electronic dosimetry dose rate and accumulated dose alarm and dose reports and the dose assignments for any intakes that occurred during the time period reviewed to determine if there were potentially unrecognized occurrences. The inspectors also conducted walkdowns of numerous locked high and very high radiation area entrances to determine the adequacy of the controls in place for these areas. Documents reviewed are listed in the Attachment to this report.

This inspection constituted one sample for occupational radiological occurrences 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.

.5 Selected Issue Follow-Up Inspection: Containment Airlocks

a. Inspection Scope

The inspectors selected a CR for detailed annual sample review (CR 08-44698). The CR was associated with an adverse trend of containment airlock failures. The report was reviewed to ensure that the full extent of the issue was identified, an appropriate evaluation was performed, and appropriate corrective actions were specified and prioritized. The inspectors evaluated the report against the requirements of the licensee's CAP as delineated in NOP-LP-2001-01, Condition Report Process, Revision 8, and 10 CFR Part 50, Appendix B.

This activity constitutes the first of two samples for an in-depth review as defined in IP 71152-05.

b. Findings

Introduction: A finding of very low safety significance (Green) and an associated NCV of TS 5.4, "Procedures," was self-revealed when a containment airlock door seal failed during routine operations.

Description: On June 1, 2008, a licensee operator exited the containment building through the upper airlock. When the operator closed the airlock outer door and operated the door hand wheel, the light that provided indication for one of the door's seals failed to illuminate. The operator made additional attempts to operate the door, but the door's small seal would not inflate. The licensee declared the upper airlock outer door inoperable and placed administrative controls on the inner door to ensure it was closed.

Licensee personnel inspected the outer door's seal mechanism and determined that a 3-way ball valve, 1P53F0591A, associated with the small seal had failed. The valve stem had separated from the valve ball.

Licensee maintenance personnel removed the failed valve, noted valve body damage, and determined that the valve needed to be rebuilt using a new valve body. The ball valve 1P53F0591A was rebuilt, installed, and then tested with satisfactory results on June 4, 2008.

Licensee maintenance and engineering personnel investigated the cause of the valve failure. During inspection of the removed components, licensee personnel noted that significant metal loss had occurred on the valve stem where it interfaced with the ball slot. The inner ring of the valve body was also worn. The licensee initially determined through engineering inspections and interviews with maintenance personnel, that contrary to valve assembly procedures, a valve stem seal ring may not have been installed during the last valve assembly. The seal ring was designed to prevent contact between the stem and the valve body. The lack of a seal ring would have resulted in metal to metal contact, galling, and damage to the valve during door operations.

The licensee could not find evidence of an installed slip ring during the initial investigation. However, subsequent licensee laboratory testing results of the valve internals indicated possible trace amounts of chemical residue on metal valve component surfaces that could be consistent with the presence of an installed slip ring at

some time in the past. The laboratory personnel used an electron microscope to identify the chemical traces.

The valve had been last worked on March 26, 2008. During this maintenance, a new valve body was installed and the internals were rebuilt. The new valve body was a replacement for the original valve body that had been in use for over 20 years.

The inspectors reviewed the March 26, 2008, work documentation and noted that workers listed two slip rings as used during the work. The inspectors further noted that the work procedures required the use of four stem slip rings. The inspectors questioned licensee maintenance personnel on the discrepancy. During interviews with the inspectors, licensee maintenance personnel stated that they believed all four slip rings were used but that they mistakenly only documented the use of two slip rings.

The licensee later informed the inspectors that there was not a high level of certainty whether the laboratory test results supported a conclusion that a slip ring had been installed. The laboratory had later questioned the accuracy of the results due to the minute amount of chemicals that were detected.

While the question of whether a stem slip ring was installed per procedure was not conclusively resolved, the inspectors considered that the valve failed and exhibited significant degradation in less than 3-months of routine use after it had been replaced. Therefore, the inspectors determined that the March 26, 2008, procedures associated with valve maintenance were not appropriate to the circumstances. Specifically, the maintenance resulted in an unsatisfactory condition of the valve.

Other doors on both upper and lower containment airlocks were potentially affected by past performance of airlock maintenance procedure Generic Mechanical Instruction (GMI)-0176, “Containment Airlock Door Maintenance”. The licensee conducted a review of the other airlock door seal mechanisms and reworked the lower and upper airlock door mechanisms. The licensee identified several deficiencies during their rework of the airlock doors, including: (1) inadequate procedure guidance for mechanism assembly relative to worker training; (2) failure to grease the door mechanisms due to a dropped maintenance task; and (3) maintenance frequencies that were not commensurate with usage frequency of the doors. As part of their corrective action, the licensee (1) conducted worker training; (2) planned to revise the airlock maintenance procedures to include additional guidance; (3) planned to increase the maintenance frequency of the airlocks; and (4) planned to reintroduce a requirement to grease the door mechanisms.

The inspectors previously noted that the licensee’s maintenance program associated with the containment airlocks had resulted in frequent airlock failures. A programmatic deficiency associated with the licensee’s maintenance and testing of the airlocks was described in NCV 05000440/2007002-02.

Analysis: The inspectors determined that the failure to implement maintenance procedures that were appropriate to the circumstances on March 26, 2008, was a performance deficiency.

The finding was determined to be more than minor because the finding was associated with the Procedure Quality attribute of the Barrier Integrity Cornerstone attribute and affected the cornerstone objective of providing reasonable assurance that physical

design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. Specifically, the finding resulted in the degradation and failure of a containment door seal.

The inspectors determined the finding could be evaluated using the SDP in accordance with IMC 0609, "Significance Determination Process," Attachment 0609.04, "Phase 1 - Initial Screening and Characterization of findings," Table 4a for the Barrier Integrity (Containment Barriers) Cornerstone. The inspectors determined that the finding did not represent an actual open pathway in the physical integrity of reactor containment because the upper airlock inner door remained closed. Therefore the finding screened as Green.

This finding has a cross-cutting aspect in the area of Human Performance, H.2.c., Resources, because the licensee did not ensure that procedures were complete and were adequate to assure nuclear safety. Specifically, the implementation of GMI-0176 resulted in the failure of valve 1P53F0591A, associated with a containment airlock seal.

Enforcement: Criterion V, "Instructions, Procedures, and Drawings," of 10 CFR Part 50, Appendix B, requires, in part, that activities affecting quality be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and be accomplished in accordance with these instructions, procedures, or drawings. Contrary to this, on March 26, 2008, the licensee failed to implement airlock maintenance procedures appropriate to the circumstances. Specifically, the airlock maintenance procedures were not appropriate to the circumstances in that the implementation of the procedures resulted in failure of the containment upper airlock inner door seal on June 1, 2008. Because this violation was of very low safety significance and it was entered into the licensee's CAP as CR 08-41097, this violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy as NCV 05000440/2008004-05, and closes URI 05000440/2008003-01.

.6 Selected Issue Follow-Up Inspection: ESW 'C' Valve Failure Affecting HPCS

a. Inspection Scope

The inspectors selected a CR for detailed annual sample review (CR 08-40969). The CR was associated with an inoperability of the HPCS system that was identified on May 26, 2008. The report was reviewed to ensure that the full extent of the issue was identified, an appropriate evaluation was performed, and appropriate corrective actions were specified and prioritized. The inspectors evaluated the report against the requirements of the licensee's CAP as delineated in NOP-LP-2001-01, "Condition Report Process", Revision 8, and 10 CFR 50, Appendix B.

This activity constitutes the second of two samples for an in-depth review as defined by IP 71152-05.

b. Findings

A licensee-identified violation is discussed in Section 4OA7 of this report.

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

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

.1 (Closed) LER 05000440/2008-001-00: Condition Prohibited by Technical Specifications Due to Unrecognized Reactor Core Isolation Cooling Inoperability

On January 14, 2008, during preparation for planned maintenance, the licensee identified that the reactor core isolation cooling (RCIC) flow controller voltage output changed independently of any alteration in system input. The RCIC system was declared inoperable. The licensee conducted an investigation that determined several instances of inadequate voltage output dating back to December 10, 2007. Therefore, the RCIC system was inoperable for 35 days and the licensee failed to meet the requirements of TS 3.5.3. As stated in TS 3.5.3, the required action is to verify HPCS is operable within 1 hour; and restore the RCIC system to operable status in 14 days; or be in hot standby within 12 hours when neither of these conditions is met. When the licensee discovered the RCIC system inoperable on January 14, 2008, the licensee did meet the requirements of TS 3.5.3.

The licensee's investigation and troubleshooting could not determine the exact cause of the controller output deviation, but listed the possible cause as one of the following four replaced components: the Bailey 701 flow controller and connector, the power supply, the ramp generator/signal converter, or the computer input circuit board. The investigation stated that equipment reliability issues of these components could have contributed to this failure, but the licensee considers that the anomaly was most likely introduced into the system during the numerous flow controller changes performed during November and December 2007.

On April 16, 2008, the licensee observed degraded RCIC flow controller output voltage, but the output voltage met operability requirements. The licensee investigated the cause and established a monitoring program to ensure RCIC system operability. On April 24, 2008, the RCIC flow controller voltage output degraded to a point where the licensee declared RCIC inoperable. A spare Bailey 701 controller (with previous service life) was installed, and RCIC was declared operable on April 24, 2008. On April 25, 2008, the licensee installed new NUS controllers that were designed to replace the obsolete Bailey 701 controllers.

The Bailey 701 flow controller installed from January to April 2008 was evaluated by the licensee's Beta lab. The lab was unable to identify the precise failure mechanism, but concluded that the most likely portions of the controller causing this degradation were the high output limit circuit (diodes, potentiometers, resistors) and the internal controller power supply (capacitors, diodes, resistors, transistors, transformer). The investigation concluded the April 2008 degraded failure was caused by age/cyclic duty degradation of flow controller subcomponents. The investigation also noted that previous Bailey 701 flow controller failures were attributed to controller subcomponent aging as the major contributor for the previous controller malfunctions.

The inspectors' discussion with the licensee concerning the two failures of the RCIC controller system determined that the two inoperability periods mentioned here were due to different equipment issues, which included the degradation of internal components of

the RCIC flow controller. Since the installation of the NUS flow controller, there have been no observed operability issues with RCIC as of the date of this report.

Licensee corrective actions included replacement of the obsolete Bailey 701 controllers with NUS controllers, and implemented a 12-year replacement/refurbishment maintenance requirement of the RCIC flow controllers. This issue was found to be a licensee-identified violation and is documented in section 4OA7. The licensee documented the issue in CRs 08-38443 and 08-39111. This LER is closed.

This review represents the first of five samples as defined in IP 71153-05.

.2 Failure to Adequately Manage Risk Associated With Working Around a Risk-Significant Underground Vault

a. Inspection Scope

The inspectors responded to an incident that occurred during routine maintenance activities for dewatering underground vaults when the man-hole cover was dropped into the vault area. The inspectors inspected the circumstance of the event, the impact on plant safety, licensee response, and regulatory issues.

b. Findings

Introduction: A Green finding (FIN) of very low safety significance was self-revealed when the licensee failed to manage risk when lifting a man-hole cover for an underground vault containing risk-significant cables.

Description: On July 30, 2008, while preparing to dewater an underground vault, man-hole number Eight, licensee personnel inadvertently dropped the man-hole cover into the vault area. The vault area contained eight electrical conduits used for indications and switchyard breaker controls affecting offsite power. The purpose of those controls was fault indication and isolation of the four breakers associated with the west bus of the switchyard. The licensee determined that the falling cover could have damaged the control cables and this could have affected controls associated with the supply of offsite power to the plant and plant stability. Without the fault protection provided by the circuits, a breaker fault would lead to an off-site circuit protection response and a loss of offsite power. The licensee determined that the dropped man-hole cover fell down the side of the vault and did not impact or damage any of the eight conduits.

The licensee's investigation determined that one of the workers involved with lifting the man-hole cover was not ready to perform this task when the other technician lifted his end of the cover. The licensee determined that the pre-job brief did not address the possibility of dropping the cover and its possible impact to plant operations. Therefore, the pre-job brief did not identify the removal of the man-hole cover as a critical task requiring additional oversight. The investigation also identified inadequate communications between the two workers as a contributing cause because the one worker did not receive verbal confirmation from the other worker that he was prepared to lift the cover.

The licensee's procedure, NOBP-LP-2604, "Effective Job Briefs," Revision 2, stated, in 4.2.1 (9), that a pre-job brief should summarize the critical steps, error-likely situations; anticipate the potential errors for each identified critical step; and evaluate and establish contingencies to prevent and catch errors. This procedure defined a critical step in 3.1 as, "a procedure step or action that, if performed incorrectly, will cause immediate, irreversible, intolerable harm to plant equipment, people, or significantly impact plant operation." Contrary to this standard, the licensee failed to identify the lifting of the man-hole cover as a critical step and therefore did not institute error prevention tools for this evolution.

Analysis: The inspectors determined that the failure to properly manage risk of the underground vault was a performance deficiency warranting a significance evaluation in accordance with IMC 0612, “Power Reactor Inspection Reports,” Appendix B, “Issue Disposition Screening,” issued on September 20, 2007. The inspectors determined that the finding was more than minor because it was related to maintenance risk assessment and risk management issues. Specifically, the licensee failed to manage risk for maintenance activities associated with the electrical switchyard, including the underground vaults, which could increase the likelihood of a loss of offsite power.

The inspectors performed a significance determination of this issue using IMC 0609, “Significance Determination Process,” dated January 10, 2008, and IMC 0609.04, “Initial Screening and Characterization of Findings,” dated January 10, 2008. The issue screened as a transient initiator contributor. As such, the finding was of very low safety significance because all mitigation equipment or functions were available. The primary cause of this finding was related to the cross-cutting aspect in the area of Human Performance because the organization failed to ensure the use of human error prevention techniques commensurate with the risk of the assigned task H.4(a).

Enforcement: The inspectors determined that no violation of regulatory requirements occurred because the electrical conduits in man-hole number Eight were not a safety-related system covered by 10 CFR Part 50, Appendix B. The licensee entered this issue into their CAP, CR 08-43997. (FIN 05000440/2008004-06)

This review represents the second of five samples as defined in IP 71153-05.

.3 Loss of Configuration Control of the Hydrogen Water Chemistry Injection System Resulting in High Radiation Levels

a. Inspection Scope

The inspectors observed a planned downpower for maintenance and responded to an incident that occurred during the evolution when operators received High Radiation alarms for the Main Steam lines. The inspectors reviewed the circumstance of the event, the impact on plant safety, licensee response, and regulatory issues.

b. Findings

Introduction: A Green finding (FIN) of very low safety significance was self-revealed when high radiation level alarms were received on the main steam lines during a reduction in reactor power. Technicians had failed to adhere to surveillance test

procedures and the hydrogen water chemistry (HWC) injection system had been inadvertently placed in manual.

Description: On June 28, 2008, while reducing power to 60 percent power for control rod exercise, operators received main steam line high radiation level alarms when reactor power was at 65 percent. Initially, the cause of the high radiation levels was unknown to plant operators.

Operators responded by stabilizing reactor power and entering Plant Emergency Instruction PEI-N11, “Containment Leakage Control,” and Off-Normal Instruction ONI-J11, “Gross Fuel Cladding Failure.” Normal radiation levels for the main steam lines were about 470 millirem per hour, and levels during the event were as high as 740 millirem per hour.

Operators investigating the cause of the high radiation levels determined that the HWC injection system was in manual mode, and that the system was injecting at a rate appropriate for 100 percent reactor power. Operators returned the HWC injection system to automatic mode so that the injection rate would adjust appropriately to reactor power levels. This returned radiation levels back to the normal range and operators exited the plant emergency instruction and off-normal procedure.

The licensee's investigation determined that during a surveillance test conducted on June 12, 2008, technicians used the HWC computer interface panel to monitor system status in an effort to limit their radiation exposure while performing the test. The surveillance, SVI-N64-T8021-A, "Main Condenser Offgas H2/O2 Monitor Channel ‘A’ Functional," Revision 7, did not allow for the use of the HWC monitor panel during the surveillance. While using the panel, technicians inadvertently placed the HWC system in manual mode, and with no procedural guidance to use the panel, they did not ensure that the HWC system was in the correct mode of operation after completing their activity. The investigation also determined that technicians considered the use of the HWC computer interface panel as an undocumented enhancement to the surveillance procedure to limit their radiation exposure. The technicians did not communicate this practice to licensee management for proper review.

The licensee's Nuclear Operating Procedure (NOP)-LP-2601, "Procedure Use and Adherence," Revision 1, states in 4.1.1, "Procedures shall be used and adhered to as written without deviating from the original intent and purpose." Contrary to this standard, licensee personnel did not adhere to the surveillance procedure when they manipulated the HWC system.

Analysis: The inspectors determined that the failure of licensee personnel to adhere to surveillance test procedures was a performance deficiency warranting a significance evaluation in accordance with IMC 0612, "Power Reactor Inspection Reports, "Appendix B, "Issue Disposition Screening," issued on September 20, 2007. The inspectors determined that the finding was more than minor because it was associated with the operating equipment lineup of the configuration control attribute 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 unexpected high radiation levels in the plant, entrance into plant emergency procedures, and challenged operators during a plant power maneuver.

The inspectors performed a significance determination of this issue using IMC 0609, "Significance Determination Process," dated January 10, 2008, and IMC 0609.04, "Initial Screening and Characterization of Findings," dated January 10, 2008. The issue screened as a transient initiator contributor. As such, the finding was of very low safety significance because all mitigation equipment or functions were available. The finding had a cross-cutting aspect in the area of Human Performance because the licensee failed to define and effectively communicate expectations regarding procedural compliance and personnel did not follow procedures. Specifically, the technicians had considered the manipulation of the HWC system to be an accepted practice though it was contrary to the test procedure. H.4(b)

Enforcement: The inspectors determined that no violation of regulatory requirements had occurred because the HWC injection system is not a safety-related system covered by 10 CFR Part 50, Appendix B. The licensee entered this issue into their CAP as CR 08-42529. (FIN 0500440/2008004-07)

This review represents the third of five samples as defined in IP 71153-05.

.4 (Closed) LER 0500440/2008-003-00: "Inoperable High Pressure Core Spray System Results in Loss of Safety Function"

On May 28, 2008, the licensee identified, during an ESW 'C' subsystem draindown surveillance, that ESW 'C' would fail to maintain system keepfill pressure during a loss of offsite power event. ESW 'C' supported operation of HPCS, and both ESW 'C' and HPCS were declared inoperable. The licensee inspected the ESW 'C' discharge check valve and discharge valve. The licensee concluded the check valve was intermittently stuck open during the surveillance test. The ESW 'C' discharge valve was not fully seated and technicians made adjustments to the motor-operated valve (MOV) to ensure complete closure. On June 1, 2008, repairs were completed and the ESW 'C' passed the loop draindown surveillance, and both HPCS and ESW 'C' were declared operable. The HPCS is a single train emergency core cooling system (ECCS) and this unplanned inoperability represented a condition that could have prevented the fulfillment of the safety function of HPCS when needed to mitigate the consequences of an accident.

During the licensee's investigation and troubleshooting, personnel observed leakage past the ESW 'C' discharge valve and determined that the valve was approximately four degrees from the optimum closed position. The licensee reset the closed limit switch of the ESW 'C' discharge valve to ensure optimum closure of the valve by the valve motor operator. The licensee determined that the ESW 'C' discharge valve was removed on June 29, 2007, when ESW 'C' failed the loop draindown test. Inspection of the discharge internals identified heavily corroded valve internals, and the ESW 'C' discharge valve was replaced. The only post-maintenance test conducted was the surveillance for ESW 'C' loop draindown test. No post-maintenance test was conducted for leak tightness and proper MOV adjustments.

Licensee's corrective actions included adjustment of the MOV closed limit switch, the development of a leak test and MOV testing, and the performance of this testing during the next refueling outage. This issue was a licensee-identified violation and is documented in section 4OA7. The licensee documented the issue in CR 08-40969. This LER is closed.

This review represented the fourth of five samples as defined in IP 71153-05.

.5 Reactor Water Cleanup (RWCU) Pipe Weld Failure

a. Inspection Scope

During the week of September 22, 2008, the inspectors observed the licensee's response to a crack that developed in a RWCU system pipe weld located downstream of the non-regenerative heat exchanger. The licensee isolated the RWCU system, performed additional inspections, and repaired the weld. The inspectors reviewed the circumstances of the event, the impact on plant safety, the licensee's response, and any regulatory issues.

This review represented the fifth of five samples as defined in IP 71153-05.

b. Findings

No findings of significance were identified.

4OA5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors conducted observations of security force personnel and activities to ensure that the activities were consistent with licensee security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

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

b. Findings

No findings of significance were identified.

.2 Independent Effectiveness Assessment of the Training Required by the NRC's August 15, 2007, Confirmatory Order (92702)

a. Inspection Scope

On August 15, 2007, the NRC issued Confirmatory Order EA-07-199 (Order) that formalized commitments made by the FirstEnergy Nuclear Operating Company

(FENOC). The FENOC commitments were documented in its July 16, 2007, letter responding to the NRC's May 14, 2007, Demand for Information (DFI).

The Order required, in part, that the licensee conduct regulatory sensitivity training for selected FENOC and non-FENOC FirstEnergy employees, to ensure those employees identify and communicate information that has the potential for regulatory impact at any FENOC nuclear site or within the nuclear industry, to the NRC. This requirement was inspected and documented in Inspection Report (IR) 05000440/2007005. That IR also lists all required Order actions.

As part of the NRC's ongoing activities to monitor the licensee's implementation of the Order, the inspectors interviewed 10 individuals who had received the training in November 2007 to determine how effective the training had been in delivering its message. The inspectors posed four questions to each of the individuals:

(1) What did you take away from the training?

(2) Has it changed your daily work activities?

(3) Do you have any specific examples?

(4) Has the training changed how you interact with your peers?

In addition, to determine whether the licensee was following its Business Practice, the inspectors reviewed the assessment forms generated when an issue was brought to FENOC's Regulatory Affairs group for evaluation.

b. Observations and Findings

Based on the documentation reviews and observations, the inspectors concluded that the training was effective at instilling within the FirstEnergy management an enhanced awareness/sensitivity to issues, and the need to ensure that any issues that could potentially impact Davis-Besse, Perry, or Beaver Valley, are promptly brought to FENOC's attention. Each of the 10 individuals interviewed indicated that they were much more sensitive to ensuring all potentially affected organizations or individuals are aware of issues and ongoing activities with specific emphasis on those issues potentially affecting the nuclear facilities. Each individual indicated that asking who else needs to be aware of an issue has become a standard practice in day-to-day activities. While there were few examples of specific issues actually being brought to the attention of Regulatory Affairs staff, individuals identified numerous items in which they or others had raised the question of who else needs to be aware of the issue. All individuals indicated that it has become an expected practice during peer meeting/interactions to question the extent to which potentially impacted organizations have been informed of issues.

Issues raised to the Regulatory Affairs organization are appropriately reviewed for applicability to the nuclear facilities. Further, in a proactive move, Regulatory Affairs has implemented a practice of attending meetings in which issues that could affect the nuclear facilities would likely arise.

These results are also being documented in inspection reports for Davis-Besse (05000346/2008004), and Beaver Valley (05000334/2007005 and 05000412/2008004).

No findings of significance were identified.

.3 NRC Temporary Instruction (TI 2515/173) "Review of the Implementation of the Industry Ground Water Protection Voluntary Initiative"

a. Inspection Scope

The inspector performed a partial review of station implementation of the industry ground water protection initiative for Objective 2.2 "Voluntary Communication." As part of that review, the inspector evaluated the licensee's response to an on-site leak of buried piping associated with the ESW system, which started on or about April 25, 2008.

This inspection constituted a partial sample as defined in TI 2515/173.

b. Findings

No findings of significance were identified.

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 October 14, 2008. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

.2 Interim Exit Meeting

The preliminary results of the licensee's radiological environmental monitoring and radioactive material control programs, and verification of the PI for public radiation safety with the Plant General Manager, Mr. K. Kruger, was held on September 12, 2008.

4OA7 Licensee-Identified Violations

The following violations of very low safety significance (Green) were identified by the licensee and are violations of NRC requirements, which meets the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as NCVs.

Cornerstone: Mitigating Systems

- Technical Specification (TS) 3.5.3, "Emergency Core Cooling Systems (ECCS) and Reactor Core Isolation Cooling (RCIC) System," Condition A.1, required that when the RCIC system is inoperable, it must be verified within one hour, by administrative means, that HPCS system is operable. Condition B.1 of TS 3.5.3 requires that when the Required Action and associated Completion Times of Condition A are not met the plant must be in Mode 3 within 12 hours. Contrary to this requirement, on December 11, 2007, the HPCS was declared inoperable for maintenance and the plant

remained in Mode 1. Specifically, on January 14, 2008, the licensee discovered that the RCIC flow controller output voltage did not meet operability requirements and this condition previously existed since December 10, 2007. Not knowing that TS LCO 3.5.3 was not met, licensee personnel did not make the required mode changes. Upon discovery, the licensee took immediate actions to restore RCIC operability. The finding was determined to be of very low safety significance because the system inoperable time was less than 30 days (CR 08-38443).

- 10 CFR Part 50, Appendix B, Criterion XI, "Test Control," requires, in part, that a test program shall be established to assure that all testing required to demonstrate that structures, systems, and components will perform satisfactorily in service is identified and performed in accordance with written test procedures which incorporate the requirements and acceptable limits contained in applicable design documents. Contrary to this, on July 21, 2007, the licensee failed to test the 'C' Emergency Service Water pump discharge valve for seat leakage following valve replacement. This resulted in high pressure core spray system inoperability and unavailability in May 2008 due to low keep-fill system pressure. Immediate corrective actions included repair of the affected valve. The finding was determined to be of very low safety significance because the system unavailability time was less than three days. (CR 08-40969)

Cornerstone: Occupational Radiation Safety

- Perry Plant TS 5.7.1 states in part, that each high radiation area shall be barricaded and conspicuously posted as a high radiation area. Contrary to the above, on June 20, 2008, an unlabeled drum of radioactive material with dose rates of 120 millirem per hour at 30 centimeters was found unattended in the non-high radiation area controlled area of the control rod drive rebuild room. A violation of regulatory requirements occurred when the area was not effectively barricaded, controlled, and conspicuously posted. This was identified in the licensee's CAP as CR 08-42154. Immediate corrective actions were to label and relocate the drum into a properly posted and controlled high radiation area. The finding was determined to be of very low safety significance because it was not an as-low-as-is-reasonably-achievable 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
M. Alfonso, Manager, Chemistry
A. Cayia, Director, Performance Improvement
K. Cimorelli, Director, Maintenance
D. Evans, Manager, Operations
E. Gordon, Radiation Protection Operational Superintendent
J. Grabner, Director, Site Engineering
H. Hanson, Jr., Director, Work and Outage Management
S. Thomas, Manger, Radiation Protection

LIST OF ITEMS OPENED, CLOSED, DISCUSSED

Opened and Closed

05000440/2008004-01	NCV	Impaired Fire Barrier for Safety-Related Building (Section 1R05)
05000440/2008004-02	NCV	Failure to Implement Compensatory Measures for a Risk-Management Activity (Section 1R13.1)
05000440/2008004-03	NCV	Failure to Implement a Procedurally-Required Risk Management Activity for a Protected Train (Section 1R13.2)
05000440/2008004-04	NCV	Failure to Use Procedures for Work Affecting Safety (Section 1R15)
05000440/2008004-05	NCV	Adequacy of Airlock Ball Valve Maintenance (4OA2.3)
05000440/2008004-06	FIN	Failure to Adequately Manage Risk Associated With Working Around a Risk-Significant Underground Vault (Section 4OA3.2)
05000440/2008004-07	FIN	Loss of Configuration Control of the Hydrogen Water Chemistry Injection System Resulting in High Radiation Levels (Section 4OA3.3)

Closed

05000440/2008-001-00	LER	Condition Prohibited by Technical Specifications Due to Unrecognized Reactor Core Isolation Cooling Inoperability (Section 4OA3)
05000440/2008-003-00	LER	Inoperable High Pressure Core Spray System Results in Loss of Safety Function
05000440/2008003-01	URI	Adequacy of Airlock Ball Valve Maintenance (Section 4OA3.2)

Discussed

05000440/2007002-02	NCV	Procedures Inappropriate to Circumstances for Degraded Containment Lower Airlock Inner Door Seal System (Section 4OA2.3)
Temporary Instruction 2515/173	TI	Review of the Implementation of the Industry Ground Water Protection Voluntary Initiative (Section 4OA5)

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

ONI-ZZZ-1; Tornado or High Winds; Revision 8
IOI-0015; Seasonal Variations; Revision 14

1R04 Equipment Alignment

VLI R-45; Division 3 Diesel Generator Fuel Oil System (Unit 1); Revision 3
VLI R-47; Division 3 Diesel Generator Lube Oil System (Unit 1); Revision 3
SDM E-22B; High Pressure Core Spray Diesel Generator System; Revision 8
GCI-0016; Scaffolding Erection, Modification or Dismantling Guidelines, Revision 14
CR 08-35043; Division 3 Diesel Governor Oil Level; dated February 5, 2008
CR 08-45038; Fire Impairment Not Prepared for Div 3 DG Exhaust Damper Work; dated 19 August 2008
USAR Section 9.2.1; Emergency Service Water System; Revision 14
System Description Manual (SDM) P45; Emergency Service Water System; Revision 9
SDM P48; Service Water/Emergency Service Water System Chlorination; Revision 4
CR 08-44095; ESW B Pump has Plexiglass Installed Behind Coupling Guard; dated 7/31/08
CR 08-44079; ESW B Pump Discharge Insulation Separated at Pipe and Pump; dated 7/31/08
VLI-P45; Emergency Service Water System; Revision 7
CR 07-12624; NRC Question on Construction Deficiency Tag Found Hanging on 2P42 HX supports
CR 08-42723; Sodium Hypochlorite Leak in ESW Supply Line in ESW Pumphouse
USAR Section 9.4.6; Revision 14
SDM M14; Containment Vessel and Drywell Purge System; Revision 5
SOI-M14; Containment Vessel and Drywell Purge System; Revision 18
VLI M14; Containment Vessel and Drywell Purge System (Unit 1); Revision 6
Drawing 912-0604; Containment Vessel and Drywell Purge; Revision BB
VLI E22A; High Pressure Core Spray; Revision 7
Engineering Evaluation Request 600491029; Scaffold in ESW Diesel Fire Pump House; dated September 10, 2008

1R05 Fire Protection (Annual/Quarterly)

FPI-0IB; Intermediate Building; Revision 5
FPI-1AB; Auxiliary Building; Revision 2
FPI-0CC; Control Complex; Revision 7
FPI-A-A02, "Periodic Fire Inspections," Revision 5
PAP-1910, "Fire Protection Program," Revision 15
PAP-0204, "Housekeeping/Cleanliness Control Program," Revision 20
Drawing D-926-002; Emergency Service Water Pumphouse; Revision E
Drawing D-926-001; Emergency Service Water Pumphouse; Revision K
CR-08-44968; NRC ID'd: NRC Identified Door Open Without Fire Impairment; dated 8/18/08
FPI-A-C01; Fire Protection Program Control Processes (Hot Work Permits, Transient Combustible Permits, Impairment Permits, and Fire Watches); Revision 10
The Operating License

FPI-1DG, Diesel Generator Building; Revision 5
Perry USAR for Unit 1, Appendix 9A, Fire Protection Evaluation Plan (Section 9A.4.5, Diesel Generator Building); Revision 12
CR 08-45442; Unplanned Fire Impairment For F-3C Fire Barrier; dated August 27, 2008
CR 08-45405; Unplanned Fire Impairment For CC-323; dated August 27, 2008

1R11 Licensed Operator Requalification Program
OTLC-3058200809_PY-SGC4; July 23, 2008 Scenario Guide; dated July 21, 2008

1R12 Maintenance Effectiveness
CR 08-41083; Failure of HPCS Test Valve To SP To Fully Stroke Open On The First Attempt; dated May 31, 2008
CR 08-40520; HPCS Discharge Strainer Blowdown Valve Indicating Light Out; dated May 18, 2008
CR 08-37864; Discrepancies In PTI-M39-P0002, HPCS Pump Room Cooler Performance Testing; dated April 7, 2009
Perry Nuclear Power Plant – Maintenance Rule Items List

1R13 Maintenance Risk Assessments and Emergent Work Control
Perry Work Implementation Schedule; Week 10, Period 5
Perry Work Implementation Schedule; Week 1, Period 6
Perry Work Implementation Schedule; Week 2, Period 6
Notification 600472744; Tornado External Missiles and Flooding
Engineering Evaluation Request; Notification # 600250251
Engineering Evaluation Request; Notification # 600308906
Engineering Evaluation Request; Notification # 600472744
CR 05-02081; RFA Request Engineering Evaluate Removal Of Floor Plug; dated March 11, 2005

1R15 Operability Evaluations
CR 08-44299; Failure to Meet Acceptance Criteria of SVI-R42T5214; dated August 5, 2008
Prompt Operability Determination Form; CR 08-44299; dated August 6, 2008
Prompt Operability Determination Form; CR 08-44262; dated August 8, 2008
CR 08-46155; Seal task Freq Exceeds EQ Calc Life For ESW Ventilation Damper Actuators; dated September 11, 2008
CR 01-4102; 1M32F0040B Damper Shaft Exhibits Undercut Exceeding Code Acceptance Criteria; dated November 28, 2001
CR 08-46155; Seal Task Frequency Exceeds EQ Calculation for ESW Ventilation Damper Actuators; dated September 11, 2008
CR 08-46302; Hydramotors Have A Grace Period Longer Than Allowed By Commitment Letter L00631; dated September 12, 2008
LER 86-021-00; Hydraulic Seal Failures Result In Inoperable Diesel Generator Building Ventilation Dampers
SDM G33; Reactor Water Clean-up System; Revision 9
SDM E31; Leak Detection System; Revision 8
SDM P41; Service Water System; Revision 9
PAP-0205; Operability of Plant Systems; Revision 18
WO 200272885; Perform SVI-P41-T2001 (92D) Service Water to Cooling Towers Isolation Valve Operability Test; dated September 22, 2008
CR 08-46484; Rising Trend in Containment Radwaste Sump In Leakage; dated September 17, 2008

CR 08-46546; RWCU Delta Flow Rate Met Threshold for Duty Team Phone Call; dated September 19, 2008
CR 08-46613; RWCU Leakage Identified in the RWCU Heat Exchanger Room; dated September 19, 2008
CR 08-46680; SW to Cooling Tower Inboard Isolation Valve Failed to Close During Surveillance; dated September 22, 2008
CR 01-3384; RFA-Retest Requirements (Why Stroke Valves Twice); dated September 20, 2001
CR 08-45326; Incorrect Gaskets Found on ESW Screen Wash Pump; dated August 26, 2008
CR 08-46852; Functionality Assessment Not Requested for Leak in RWCU Piping; dated September 25, 2008
CR 08-46986; Unsatisfactory Draft Functionality Assessment; dated September 24, 2008

1R19 Post-Maintenance Testing

WO 200329040; Suppression Pool Level A Wet Leg; dated July 14, 2008
Problem Solving Plan; CR 08-43008 Suppression Pool Instruments Read Incorrectly Following SVI-E51-T11295E; Revision 0
CR 08-42640; Suppression Pool Level Instruments; dated July 1, 2008
CR 08-43008; Suppression Pool Level A Instrument Read Low After Testing Repeat Issue; dated July 9, 2008
CR 08-42637; "A" Suppression Pool Instrument Read Lower Following Venting; dated July 1, 2008
WO 200328695; Troubleshoot Cause of Multiple AEGTS 'A' Low Flow Alarms; dated July 14, 2008
CR 08-42798; AEGTS Fan A Low Flow Alarms; dated July 3, 2008
CR 06-00267, New Transmitter Installation Results in Gross Fail Operation Deficiency; dated January 18, 2006
CR 07-30597, Unplanned Tech Spec Entry Due to Hi Gross Fail Locked In; dated November 27, 2007
CR 08-46223, Received Gross Fail High During Norma Surveillance Flow Testing; dated September 13, 2008
ICI-B21-1, Rosemount Master Trip Unit (510DU) and (710DU); Revision 5
SVI-E12-T1195-C, LPCI Pump C Low Flow (Bypass) Channel Calibration for 1E12-N052C; Revisions 5 and 6
SVI-E51-T1293-A, RCIC Actuation – CST Low Level Channel A Calibration for 1E51-N035A; Revisions 4 and Revision 5
SVI-P41-T2001; Service Water to Cooling Towers Isolation Valve Operability Test; Revision 6
SVI-G43-T1305E; Accident Monitoring Suppression Pool Water Level Channel Calibration; Revision 3
WO 200340028; Perform Visual Inspections of OP41F0420 MOV Operator Identify Deficiencies, and Cycle Valve Remotely for Testing; dated September 23, 2008
WO 200203776; Perform Service Water to Cooling Towers Isolation Valve Operability Test SVI for PMT of Valve P41F0420; dated September 25, 2008
WO 200201001; Perform Recorder Replacements Utilizing ECP 06-0016-01 which superseded ECP 04-0043 & ECP 06-0069; dated September 23, 2008
ECP 06-0016-001; Replace Recorders 1G43R0093A, 1G43R0073A, 1D23R0250A, 1D23R0180A, 1M51R0090 and 1M51R0091 with New Recorders 1G43R0103A, 1D23R0281A and 1M51R0731; dated January 27, 2008
CR 08-46680; SW to Cooling Tower Inboard Isolation Valve Failed to Close During Surveillance; dated September 22, 2008
CR 06-01466; Westronics Recorder Series 1220B ECP Problems; dated March 29, 2006

CA 05-00013; Suppression Pool Level High Range Recorder Blue Pen Failed; dated January 1, 2005

1R22 Surveillance Testing

WO 200274103; SVI-P42T2001A; Emergency Closed Cooling System A Pump and Valve Operability; dated August 4, 2008
WO 200314659; Visual Inspection of the Emergency Diesel Generator hallway; dated August 2008
SOI-E22B, Division 3 Diesel Generator; Revision 23
SVI-E22-T1319, Diesel Generator Start and Load Division 3; Revision 14
SVI-C51-T0030-G, APRM G Channel Calibration for 1C51-K605G; Revision 9
SVI-C51-T0051A; OPRM Channel A Functional For 1C51-K603A; Revision 4
WO 200269152; Perform SVI-C61-T1200 (184D) OPRM Channel A Functional for 1C51-K603A; dated September 25, 2008

1EP6 Drill Evaluation

OTLC-3058200810-PY-SGC2; dated August 22, 2008

2OS1 Access Control to Radiologically Significant Areas

CR 07-26352; Potential LHRA Issues Associated with the Spent Fuel Clean-Out Project; dated September 2007
CR 07-26415; Container Identified Tied Off to handrail in Fuel Handling Building; dated September 2007
CR 07-26726; Locked High Radiation Area Key/Door Controls; dated September 2007
CR 07-26930; Change Management Failed to Identify a Change in VHRA Key (Inventory Frequency); dated September 2007
CR 08-42154; Elevated Dose Rates on Unlabeled Drum; dated June 2008
HPI-C0010; Radiation Protection Support of Plant Startup; Revision 5
HPI-C0014; Radlock Key Issue; Revision 0
HPI-L0009; Discrete Particle Control; Revision 4
IOI-17; Drywell Entry and Access Control; Revision 10
NOP-WM-7025; High Radiation Area Program; Revision 02
NOP-WM-7003; Radiation Work Permit (RWP); Revision 04

4OA1 Performance Indicator Verification

Perry Safety System Functional Failures; July 2007
Perry Safety System Functional Failures; August 2007
Perry Safety System Functional Failures; September 2007
Perry Safety System Functional Failures; October 2007
Perry Safety System Functional Failures; November 2007
Perry Safety System Functional Failures; December 2007
Perry Safety System Functional Failures; January 2008
Perry Safety System Functional Failures; February 2008
Perry Safety System Functional Failures; March 2008
Perry Safety System Functional Failures; April 2008
Perry Safety System Functional Failures; May 2008
Perry Safety System Functional Failures; June 2008
LER 2007-003; Improper Containment Floor Grating Installation Results in an Unanalyzed Condition; dated October 26, 2007
NOBP-LP-4012; NRC Performance Indicators; Revisions 3

SVI-P35-T3011; Perry Operations Manual Surveillance Instruction; Dose Equivalent Iodine Analysis; Revision 6

4OA2 Identification and Resolution of Problems

WO 200273140; Penetration Pressurization Valve Operability Test; dated March 27, 2008
CR 08-43113; Condition Report 08-41101 Did Not Identify The Airlock Ball Valve Failure Cause; dated July 11, 2008
CR 08-41097; Upper Air Lock Outer Door Unplanned Tech Spec Entry; dated June 1, 2008
CR 08-41101; P53-Upper Airlock Outer Door Outer Seal; dated June 1, 2008
WO 200176053; Upper Containment Airlock Outer Door Tubing; dated March 29, 2008
WO 200249806; Upper Containment Airlock Outer Door Ball Valve; dated March 29, 2008
WO 200324733; 3-Way Valve Outer Door Small Seal Upper; dated June 4, 2008
WO 200324651; Upper Containment Airlock Outer Door Seal; dated June 2, 2008
CR 08-46177; RWCU Inlet Conductivity Reading Erratic; dated September 12, 2008
CR 08-46160; 1N25-N226B Yarway Pegged High MSR 1B DT Alarm; dated September 11, 2008
CR 08-40969; High Pressure Core Spray Inoperable; dated May 28, 2008
WO 200272874; HPCS ESW Pump Discharge Check Valve; dated May 31, 2008
WO 200176053; Upper Containment Outer Door; dated March 29, 2008
CR 08-43678; Upper Airlock Order Contains Parts Discrepancy Used In Ball Valve Rebuild; dated July 23, 2008
CR 08-43422; Near Miss Incident Concerning SAM9; dated July 18, 2008

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

CR 08-38443; RCIC Controller Output Computer Point, Decreasing Trend; dated April 16, 2008
CR 08-3911; Unplanned Tech Spec Entry RCIC System Controller Failure; dated April 24, 2008

4OA5 Other Activities

CR 08-39814; ESW Coupling Leak – Division 2; dated May 2008
CR 08-43250; Perry Response to NRC Tritium Inquiry; dated July 2008
FirstEnergy Groundwater Field Sampling Plan, Perry Nuclear Power Plant; dated August 2007
NOP-OP-2012; Groundwater Monitoring; Revisions 01 and 02

LIST OF ACRONYMS USED

°F	degrees Fahrenheit
AC	alternating current
ADHR	alternate decay heat removal
AEGTS	annulus exhaust gas treatment system
APRM	average power range monitor
CAP	Corrective Action Program
CFR	*Code of Federal Regulations*
CR	condition report
DFI	Demand for Information
DFP	diesel fire pump
ECC	emergency closed cooling
EDG	emergency diesel generator
EER	Engineering Evaluation Request
ESW	emergency service water
FENOC	FirstEnergy Nuclear Operating Company
FIN	Finding
FPI	Fire Protection Instruction
GMI	Generic Mechanical Instruction
HPCS	high pressure core spray
HWC	hydrogen water chemistry
IMC	Inspection Manual Chapter
IP	Inspection Procedure
IR	Inspection Report
LCO	limiting condition for operation
LER	Licensee Event Report
LPCS	low pressure core spray
MOV	motor-operated valve
MSPI	mitigating systems performance index
MW	MegaWatt
NCV	non-cited violation
NEI	Nuclear Energy Institute
NOP	Nuclear Operating Procedure
NRC	Nuclear Regulatory Commission
OPRM	oscillating power range monitor
PAP	Perry Administrative Procedure
PI	performance indicator
RCIC	reactor core isolation cooling
RHR	residual heat removal
RWCU	reactor water cleanup
SDP	Significance Determination Process
SVI	Surveillance Instruction
TI	Temporary Instruction
TS	Technical Specification
UFSAR	Updated Final Safety Analysis Report
USAR	Updated Safety Analysis Report
WO	work order