

April 25, 2007

Mr. L. William Pearce  
Site Vice President  
FirstEnergy Nuclear Operating Company  
Perry Nuclear Power Plant  
P. O. Box 97, 10 Center Road, A290  
Perry, OH 44081-0097

SUBJECT: PERRY NUCLEAR POWER PLANT NRC INTEGRATED  
INSPECTION REPORT 05000440/2007002

Dear Mr. Pearce:

On March 31, 2007, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Perry Nuclear Power Plant. The enclosed inspection report documents the inspection findings which were discussed on March 30, 2007, with you and other members of your staff.

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

The report documents two NRC-identified findings of very low safety significance (Green). However, because of their very low safety significance and because the issues have been entered into your corrective action program, the NRC is treating the violations as non-cited violations (NCVs) in accordance with Section VI.A.1 of the NRC Enforcement Policy. Additionally, two licensee-identified violations, which were determined to be of very low safety significance, are listed in this report.

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

L. Pearce

-2-

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/**

Eric R. Duncan, Chief  
Branch 6  
Division of Reactor Projects

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

Enclosure: Inspection Report 05000440/2007002  
w/Attachment: Supplemental Information

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

L. Pearce

-2-

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,

Eric R. Duncan, Chief  
Branch 6  
Division of Reactor Projects

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

Enclosure: Inspection Report 05000440/2007002  
w/Attachment: Supplemental Information

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

DOCUMENT NAME: C:\FileNet\ML071170300.wpd

Publicly Available       Non-Publicly Available       Sensitive       Non-Sensitive  
To receive a copy of this document, indicate in the concurrence box "C" = Copy without attach/encl "E" = Copy with attach/encl "N" = No copy

OFFICE	RIII	RIII				
NAME	RRuiz:ntp	EDuncan				
DATE	04/24/07	04/25/07				

**OFFICIAL RECORD COPY**

DISTRIBUTION:

RAG1

TEB

TJW2

RidsNrrDirslrib

GEG

KGO

GLS

MEF1

CAA1

LSL (electronic IR's only)

C. Pederson, DRS (hard copy - IR's only)

DRPIII

DRSIII

PLB1

TXN

[ROPreports@nrc.gov](mailto:ROPreports@nrc.gov) (inspection reports, final SDP letters, any letter with an IR number)

U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-440

License No: NPF-58

Report No: 05000440/2007002

Licensee: FirstEnergy Nuclear Operating Company (FENOC)

Facility: Perry Nuclear Power Plant, Unit 1

Location: Perry, Ohio

Dates: January 1, 2007, through March 31, 2007

Inspectors: M. Franke, Senior Resident Inspector  
M. Wilk, Resident Inspector  
R. Clagg, Reactor Engineer  
J. Jandovitz, Reactor Inspector  
G. O'Dwyer, Reactor Engineer

Approved by: Eric R. Duncan, Chief  
Branch 6  
Division of Reactor Projects

Enclosure

## SUMMARY OF FINDINGS

IR 05000440/2007002; 01/01/2007 - 03/31/2007; Perry Nuclear Power Plant; Operability Evaluations; Identification and Resolution of Problems

This report covers a 3-month period of baseline inspection. The inspection was conducted by the resident and regional inspectors. This inspection identified two findings of very low safety significance which involved non-cited violations (NCVs) of NRC requirements. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter (IMC) 0609, "Significance Determination Process." Findings for which the Significance Determination Process 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 3, dated July 2000.

### A. Inspector-Identified and Self-Revealed Findings

#### **Cornerstone: Barrier Integrity**

Green. The inspectors identified a finding a very low safety significance and an associated non-cited violation of 10 CFR 50.55(a)(b)(5), "Codes and Standards," for the failure to appropriately implement American Society of Mechanical Engineers (ASME) Section XI Code Cases in the operability evaluation of a through-wall leak on a Class 3 component. Specifically, the licensee identified a through-wall leak on an emergency service water (ESW) pipe weld on the outlet of the 'B' emergency closed cooling heat exchanger. The piping was ASME Code Class 3 and the licensee applied Code Case N-513-2, "Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Piping," for flaw acceptance in lieu of a Code repair. This Code Case was not approved in Regulatory Guide 1.147 and therefore could not be used without prior NRC approval. Subsequently, when Code Case N-513-1 was used, the licensee did not account for all flaws in the leaking pipe section. The primary cause of this finding was related to the cross-cutting area of Human Performance because licensee personnel were not trained adequately to recognize the inappropriate implementation of the Code (H.2(b)). As part of their immediate corrective actions, licensee personnel revised the flaw analysis to account for all flaws in the affected pipe section and the licensee concluded that the structural requirements of Section XI were met.

The finding was more than minor because the failure to appropriately implement Code requirements in the operability evaluation of through-wall leaks in safety system piping was associated with the Equipment Performance 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 (i.e., core damage). This finding was determined to be of very low safety significance because the revised flaw characterization and flaw analysis determined that the structural integrity of the pipe met Code acceptance limits. (Section 1R15)

Green. The inspectors identified a finding of very low safety significance and a non-cited violation of Technical Specification 5.4, "Procedures," during a review of the

Enclosure

containment airlock system. Specifically, the inspectors identified that the licensee had failed to implement airlock test and maintenance procedures that were appropriate to the circumstances when the lower airlock seal system was found to be degraded and subject to frequent failure. The primary cause of this finding was related to the cross-cutting area of Problem Identification and Resolution because licensee personnel failed to implement internal operating experience through changes in station processes, procedures, or equipment to address the frequent failures of the lower airlock seal system (P.2(b)). As part of their immediate corrective actions, the licensee initiated a procedure review to determine appropriate torque values and test frequencies for the affected valves. As a long-term corrective action, the licensee planned to replace all affected valves.

The finding was more than minor because it was associated with the Containment 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. Because the lower airlock outer door containment barrier was determined to be available during the periods when the inner door barrier was affected, the finding was determined to be of very low safety significance. (Section 4OA2)

**B. Licensee-Identified Violations**

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

## REPORT DETAILS

### Summary of Plant Status

The plant began the inspection period at 100 percent power. As the plant approached the end of a fuel cycle over the course of the inspection period, operators conducted several planned power maneuvers for rod adjustments. At 2:33 p.m. on March 14, 2007, operators reduced reactor power due to a degrading condenser vacuum caused by condenser air in-leakage. Power was reduced to about 60 percent and repairs were made to correct the in-leakage. At 11:00 p.m. on March 15, 2007, operators returned reactor power to 100 percent. On March 18, 2007, the plant began a final coast-down in power as it approached a planned refueling outage. The plant ended the inspection period at 94 percent power.

### 1. REACTOR SAFETY

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

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

##### a. Inspection Scope

On January 24, 2007, a winter weather advisory was issued for northeast Ohio due to an incoming arctic cold front and expected snow squalls. The inspectors observed the licensee's preparations and planning for the significant winter weather potential. The inspectors reviewed licensee procedures and discussed potential compensatory measures with control room personnel. The inspectors conducted a site walkdown. Additionally, the inspectors conducted walkdowns of various plant structures and systems to check for maintenance or other apparent deficiencies that could affect system operations during the predicted significant weather.

This review represented one inspection sample.

##### b. Findings

No findings of significance were identified.

#### 1R04 Equipment Alignment (71111.04)

##### .1 Semi-Annual Complete System Walkdown

##### a. Inspection Scope

The inspectors performed a complete walkdown of accessible portions of the control rod drive (CRD) hydraulic system to determine system operability and condition during the month of January 2007. The CRD system was selected due to its risk significance. The inspectors used valve lineup instructions (VLIs) and system drawings to accomplish the inspection.



The inspectors observed selected switch and valve positions, electrical power availability, system pressure and temperature indications, component labeling, and general material condition. The inspectors determined whether system configurations and operating parameters were consistent with licensee procedures and drawings. The inspectors also reviewed open system engineering issues as identified in the licensee's Quarterly System Health Report, outstanding maintenance work requests, and a sampling of condition reports (CRs) to determine whether problems and issues were identified, and corrected, at an appropriate threshold. The documents used for the walkdown are listed in the attached List of Documents Reviewed.

This review represented one semi-annual complete system walkdown.

b. Findings

No findings of significance were identified.

.2 Quarterly Partial System Walkdowns

a. Inspection Scope

The inspectors conducted a partial walkdown of the system trains listed below to determine whether the systems were correctly aligned to perform their designed safety function. The inspectors used VLIs and system drawings during the walkdown. The walkdown included selected switch and valve position checks, and verification of electrical power to critical components. Finally, the inspectors evaluated other elements, such as material condition, housekeeping, and component labeling. The documents used for the walkdown are listed in the attached List of Documents Reviewed. The inspectors reviewed the following systems:

- reactor core isolation cooling (RCIC) system during a Division 3 maintenance outage the week of January 8, 2007;
- emergency closed cooling (ECC) system 'A' and 'B' Trains during a Division 3 maintenance outage the week of January 8, 2007;
- Division 1 emergency diesel generator (EDG) while the Division 1 EDG was inoperable during the week of January 29, 2007; and
- emergency service water (ESW) system during the week of February 12, 2007.

This review represented four quarterly partial system walkdown samples.

b. Findings

No findings of significance were identified.

## 1R05 Fire Protection (71111.05AQ)

### a. Inspection Scope

The inspectors walked down the following areas to assess the overall readiness of fire protection equipment and barriers:

- Fire Zone 0IB-4, Intermediate Building, elevation 654';
- Fire Zone 0IB-1, Intermediate Building, elevation 574';
- Fire Zone 0IB-2; Intermediate Building, elevation 599';
- Fire Zone 1CC-3c; Unit 1 - Division 1 switchgear room, elevation 620' - 6";
- Fire Zone 1CC-3a; Unit 1 - Division 2 switchgear room, elevation 620' - 6";
- Fire Zone 1CC-3b; Unit 1 - Division 3 switchgear room, elevation 620' - 6";
- Fire Zone 1CC-4e; Unit 1 - Division 1 cable spreading area, elevation 638' - 6";
- Fire Zone 1CC-4a; Unit 1 - Division 2 cable spreading area, elevation 638' - 6";
- Fire Zones 1CC-4g and 1CC-4h; Unit 1 - Division 1 125 Volt Direct Current (DC) distribution and battery rooms, elevation 638' - 6";
- Fire Zones 1CC-4c and 1CC-4d; Unit 1 - Division 2 125 Volt DC distribution and battery rooms, elevation 638' - 6"; and
- Fire Zone 0CC-1A,1B, and 1C; Control Complex, elevation 574'-10".

Emphasis was placed on evaluating the licensee's control of transient combustibles and ignition sources, the material condition of fire protection equipment, and the material condition and operational status of fire barriers used to prevent fire damage or propagation.

The inspectors observed fire hoses, sprinklers, and portable fire extinguishers to determine whether they were installed at their designated locations, were in satisfactory physical condition, and were unobstructed. The inspectors also evaluated the physical location and condition of fire detection devices. Additionally, passive features such as fire doors, fire dampers, and mechanical and electrical penetration seals were inspected to determine whether they were in good physical condition. The documents listed in the List of Documents Reviewed at the end of this report were used by the inspectors during the inspection of this area.

These reviews represented eleven quarterly inspection samples.

### b. Findings

No findings of significance were identified.

## 1R07 Heat Sink Performance (71111.07B)

### a. Inspection Scope

The inspectors performed a biennial review of the performance of the Train 'B' ECC system heat exchanger and the high pressure core spray (HPCS) room coolers. These heat exchangers were chosen for review based on many factors, e.g., their high risk

achievement worth in the licensee's probabilistic safety analysis, their important safety-related mitigating system support functions, never previously being sampled, and relatively low margin. While on-site, the inspectors verified that the inspection, engineering and maintenance activities were adequate to ensure proper heat transfer. This was done by conducting independent heat transfer capability calculations, reviewing the methods used to inspect the heat exchangers, verifying that the as-found results were appropriately dispositioned, and personnel interviews. The inspectors also verified, by review of procedures, test results, and interviews that chemical treatments, ultrasonic tests, and methods used to control biotic fouling corrosion and macro-fouling were sufficient to ensure required heat exchanger performance. The inspectors verified that the condition and operation of these heat exchangers were consistent with design assumptions in heat transfer calculations by reviewing related procedures and surveillances. This was performed by reviewing inspect/clean work orders (WOs), calculations, and completed surveillance tests. During the inspection, the inspectors walked down the selected heat exchangers and verified installation configurations complied with design documents and material condition was adequate.

Also while onsite, the inspectors verified two attributes of the ultimate heat sink (UHS) as required by IP 71111-07B, Section 2.02, items d.2 and d.6. On March 1, 2007, the inspectors observed the diving team accomplish the underwater inspection of the ESW intake tunnel interior. The divers had cameras and videotaped the tunnel interior while they inspected. A real-time video monitor was set up in the ESW greenhouse and plant personnel observed the inspection progress on the monitor. The inspectors also observed the inspection on the video monitor. On February 28, 2007, the inspectors reviewed videotapes of previously accomplished underwater inspections. The inspectors also reviewed written documentation of inspections, maintenance, and repairs of below-water portions which ensured structural integrity of underwater UHS structures. The inspectors confirmed that the inspection and maintenance methodologies were consistent with accepted NRC and industry practices. The inspectors also verified that the licensee had appropriate controls in place to ensure functionality of the UHS during adverse weather conditions, e.g., icing or high temperatures.

The inspectors reviewed corrective action documents concerning heat exchanger or heat sink performance issues to verify that the licensee had an appropriate threshold for identifying issues. The inspectors also evaluated the effectiveness of the corrective actions for identified issues, including the engineering justifications for operability. The documents that were reviewed are included at the end of the report.

These reviews represented two inspection samples.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

a. Inspection Scope

The resident inspectors observed licensed operator performance in the plant simulator for an emergency preparedness drill conducted on February 6, 2007. The inspectors evaluated crew performance in the areas of:

- clarity and formality of communication;
- ability to take timely action in the safe direction;
- prioritizing, interpreting, and verifying alarms;
- correct use and implementation of procedures, including alarm response procedures;
- timely control board operation and manipulation, including high-risk operator actions; and
- group dynamics.

The inspectors also reviewed the licensee's evaluation of crew performance to determine whether the training staff had identified performance deficiencies and specified appropriate remedial actions.

This review represented one inspection sample.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors reviewed the licensee's implementation of the maintenance rule requirements to determine whether component and equipment failures were identified and scoped within the maintenance rule and that select structures, systems, and components (SSCs) were properly categorized and classified as (a)(1) or (a)(2) in accordance with 10 CFR 50.65. The inspectors reviewed station logs, maintenance WOs, selected surveillance test procedures, and a sample of CRs to determine whether the licensee was identifying issues related to the maintenance rule at an appropriate threshold and that corrective actions were appropriate. Additionally, the inspectors reviewed the licensee's performance criteria to determine whether the criteria adequately monitored equipment performance and to determine whether changes to performance criteria were reflected in the licensee's probabilistic risk assessment. During this inspection period, the inspectors reviewed the following SSCs:

- HPCS; and
- containment airlocks.

These reviews represented two quarterly inspection samples.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed the licensee's evaluation of plant risk, scheduling, configuration control, and performance of maintenance associated with planned and emergent work activities to determine whether scheduled and emergent work activities were adequately managed in accordance with 10 CFR 50.65(a)(4). In particular, the inspectors reviewed the licensee's program for conducting maintenance risk assessments to determine whether the licensee's planning, risk management tools, and the assessment and management of on-line risk were adequate. The inspectors also reviewed licensee actions to address increased on-line risk when equipment was out of service for maintenance, such as establishing compensatory actions, minimizing the duration of the activity, obtaining appropriate management approval, and informing appropriate plant staff, to determine whether the actions were accomplished when on-line risk was increased due to maintenance on risk-significant SSCs. The following assessments and/or activities were reviewed:

- Division 3 maintenance outage during the week of January 8, 2007;
- motor feed pump emergent work performed on January 21, 2007;
- Division 2 EDG jacket water system repairs during the week of February 3, 2007;
- RCIC outage during the week of February 24, 2007; and
- residual heat removal 'C' snubber maintenance during the week of March 3, 2007.

These reviews represented five inspection samples.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors selected CRs related to potential operability issues for risk-significant components and systems. These CRs were evaluated to determine whether the operability of the components and systems was justified. The inspectors compared the operability and design criteria in the appropriate sections of the Technical Specification (TS) and Updated Safety Analysis Report (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 were in place, would function as intended, and were properly controlled.

Additionally, the inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. The inspectors reviewed the following issues:

- an operability evaluation associated with HPCS waterleg oil level fluctuations during the week of January 8, 2007;
- an operability evaluation associated with 'B' ESW system leakage from a pipe weld at the outlet of the 'B' ECC system heat exchanger during the weeks of February 5 and February 12, 2007;
- an operability evaluation associated with silt accumulation in the ESW lake intake tunnel during the week of February 12, 2007;
- an operability evaluation associated with safety relief valve solenoid fastener torque values during the week of February 26, 2007; and
- an operability evaluation associated with stall thrust exceeding specifications on residual heat removal system valve 1E12-F0073B.

These reviews represented five inspection samples.

b. Findings

Introduction: The inspectors identified a finding a very low safety significance and an associated NCV of 10 CFR 50.55(a)(b)(5), "Codes and Standards," for the failure to appropriately implement American Society of Mechanical Engineers (ASME) Section XI Code Cases in the operability evaluation of a through-wall leak on a Class 3 component. Specifically, the licensee used ASME Section XI Code Case N-513-2, which was not approved by the NRC, and subsequently failed to meet the flaw evaluation requirements of Code Case N-513-1, the approved Code Case, when accepting a through-wall flaw in an ASME Class 3 system.

Description: The inspectors reviewed documents related to the prompt operability determination for a leak identified by the licensee on February 6, 2007 in an ESW pipe weld on the outlet of the 'B' ECC heat exchanger. The licensee recognized that the pipe was an ASME Class 3 component and, as such, was required to meet the ASME Section XI Code for evaluation and repairs. The Code allowed options to perform a repair or to temporarily (until the next outage) complete an evaluation to accept the flaw for continued service until the repair could be completed.

The ASME Code Cases contained requirements for conditions that were not addressed in the main Code Editions or Addenda. However, 10 CFR 50.55(a)(b)(5) stated that licensees may only apply the Code Cases listed in Regulatory Guide 1.147, through Revision 13, without prior NRC approval. Two Code Cases, Code Case N-513-1 and Code Case N-513-2, were issued that addressed the acceptance of the flaw identified by the licensee. However, only Code Case N-513-1 was contained in the Regulatory Guide.

The licensee characterized the flaw by ultrasonic methods on February 6 and 7, 2007, in accordance with Code Case N-513-1. This information was provided to a consultant to perform the flaw evaluation for structural integrity, which would form the basis for

acceptance of the flaw. The consultant used the flaw evaluation methods of Code Case N-513-2, which was then approved by the licensee and the flaw was declared acceptable on February 7, 2007. The NRC initiated a teleconference to discuss the Code Case requirements with the licensee on the same day, and the licensee recognized that the flaw evaluation could not be used due to the use of an unapproved Code Case. The licensee declared the system inoperable and the flaw analysis was performed again on February 8, 2007, using Code Case N-513-1, and the licensee concluded that the structural requirements of Section XI were met.

On February 13, 2007, the inspectors reviewed Revision 1 of the prompt operability determination and supporting documents associated with the issue. Documents reviewed included the ultrasonic reports and the flaw evaluations conducted by the contractor.

The licensee had characterized the wall thickness of the pipe section containing the flaw with ultrasonic testing using existing grids and also a continuous scan of 100 percent of the pipe segment. Additionally, licensee personnel performed an ultrasonic inspection of the weld using a procedure qualified to the Performance Demonstration Initiative to determine the nature of the flaw. The lowest thickness reading on the grids was 0.121 inches at coordinate H-7. The lowest wall thickness reading found by continuous scanning was 0.104 inches adjacent to the leak and was close to coordinate H-7. The actual leaking flaw was characterized to be non-planar (not a crack) of a spot size (as opposed to an erosion corrosion condition). The cause was not determined, and the licensee planned to remove the section in the upcoming outage to have it analyzed. Nominal wall thickness for the piping specification was 0.216 inches.

Based on a review of the ultrasonic data by the inspectors and the licensee's description of the flaw, two flaw mechanisms existed; a general wall thinning and the through-wall flaw. Code Case N-513-1, section 2(c), required that, when multiple flaws are detected, the interaction and combined area loss of flaws in the given pipe section shall be accounted for in the evaluation.

The inspectors reviewed the contractor's flaw analysis for Code Case N-513-1 and determined that the licensee provided 0.104 inches as the minimum wall thickness. However, when the contractor performed the flaw analysis, a nominal wall thickness of 0.216 inches was used in the calculation. Upon questioning by the inspectors it was found that the flaw analysis did not account for the wall thickness that was below the piping specification tolerances as required by Code Case N-513-1. Therefore, the flaw analysis approved by the licensee on February 8, 2007, was not valid and on February 15, 2007, the licensee declared the ESW 'B' Train inoperable until a flaw analysis accounting for both flaws was completed and approved. The revised flaw analysis was completed and approved, and the ESW 'B' Train was declared operable again later on February 15, 2007.

Analysis: The inspectors determined that the failure to appropriately implement ASME Code Case N-513-1 was a performance deficiency warranting a significance evaluation in accordance with Appendix B, "Issue Dispositioning Screening," of IMC 0612, "Power

Reactor Inspection Reports,” dated November 2, 2006. In particular, the inspectors compared this finding to the findings identified in Appendix E, “Examples of Minor Issues,” dated June 22, 2006, of IMC 0612, to determine whether the finding was minor and concluded that none of the examples listed in Appendix E accurately represented this example. As a result, the inspectors compared this finding to the “minor” questions contained in Section 3, “Minor Questions,” to Appendix B of IMC 0612. The inspectors concluded that this finding was greater than minor because declaring a flaw in an ASME pressure boundary component as acceptable using unapproved Code criteria and improperly evaluating that the component’s structural integrity met ASME Code criteria was associated with the Equipment Performance attribute of the reactor safety 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 (i.e., core damage). The inspectors noted that numerous licensee personnel had reviewed and approved the improper code evaluations. After several discussions with licensee personnel, the inspectors concluded that the primary cause of this finding was related to the cross-cutting area of Human Performance because licensee personnel were not trained adequately to recognize the inappropriate implementation of the Code until the issues were identified by the inspectors (H.2(b)).

The inspectors evaluated the finding using the guidance in IMC 0609, Appendix A, “Significance Determination of Reactor Inspection Findings for At-Power Situations,” dated March 23, 2007. The inspectors answered “yes” to all the questions on the Mitigating Systems Cornerstone worksheet, therefore the inspectors determined that this finding was of very low safety significance. Specifically, the flaw found in the ESW pipe weld was determined to be acceptable in accordance with Code structural limits.

Enforcement: 10 CFR 50.55(a)(b)(5) allowed use of Code Cases for conditions not addressed in the Code Editions and Addenda and allowed implementation without prior NRC approval if the Code Case was referenced in Regulatory Guide 1.147. In addition, the Code Case that applied for this flaw required that all flaws in the section of pipe containing the leak be accounted for in the flaw evaluation. Contrary to these requirements, from February 7 through February 15, 2007, the licensee failed to appropriately implement the approved Code Case N-513-1, and accepted a through-wall flaw in an ASME Class 3 system without appropriate evaluation. The licensee entered this finding into the corrective action program as CR 07-14066 and initiated a root cause evaluation of the issue. Because of the very low safety significance of this finding and because the issue was entered into the corrective action program, it is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 05000440/2007002-01).

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors evaluated the following post-maintenance testing activities for risk-significant systems to ensure 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; and equipment was returned to its operational status following testing. The inspectors evaluated the activities against TS, the USAR, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications. In addition, the inspectors reviewed CRs associated with post-maintenance tests to determine whether the licensee was identifying problems and entering them in the corrective action program. The specific procedures and CRs reviewed are listed in the attached List of Documents Reviewed. The following post-maintenance activities were reviewed:

- HPCS testing after maintenance during the week of January 15, 2007;
- Division 3 EDG testing following maintenance during the week of January 15, 2007; and
- lower containment airlock inner door testing following repair during the week of January 22, 2007.

These reviews represented three inspection samples.

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20)

a. Inspection Scope

The inspectors reviewed the refueling outage (RFO) plan for RFO 11 which was scheduled to begin on April 2, 2007. The inspectors reviewed the licensee's risk control plans to determine whether the licensee had appropriately considered risk, industry experience and previous site specific problems. The inspectors determined whether the licensee had mitigation and response strategies for losses of key safety functions.

This review represented one inspection sample.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed surveillance testing or reviewed test data for risk-significant systems or components to assess compliance with TS, 10 CFR 50, Appendix B, and licensee procedure requirements. The testing was also evaluated for consistency with the USAR. The inspectors verified that the testing demonstrated that the systems were ready to perform their intended safety functions. The inspectors determined whether test control was properly coordinated with the control room and performed in the

sequence specified in the surveillance instruction (SVI), and if test equipment was properly calibrated and installed to support the surveillance tests. The procedures reviewed are listed in the attached List of Documents Reviewed. The surveillance activities assessed were:

- new reactor fuel receipt routine testing performed during the week of January 15, 2007;
- Division 1 EDG routine testing performed on January 23, 2007;
- Division 2 EDG routine 24-hour run testing performed on January 31, 2007;
- RCIC pump and valve in-service testing on February 22, 2007; and
- standby liquid control 'A' pump and valve in-service testing performed on March 22, 2007.

These reviews represented two in-service inspection samples and three routine testing inspection samples.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed a motor feed pump system modification that was installed on January 21, 2007. The modification consisted of a splash shield to prevent water leakage from the pump motor seals into the bearing oil system.

The inspectors assessed the acceptability of this temporary configuration change by comparing the 10 CFR 50.59 screening and evaluation information against the design basis, the USAR, and the TS as applicable. The comparisons were performed to ensure that the new configurations remained consistent with design basis information. The inspectors, as applicable, performed field verifications to ensure that the modifications were installed as directed; the modifications operated as expected; modification testing adequately demonstrated continued system operability, availability, and reliability; and, that operation of the modifications did not impact the operability of any interfacing systems.

This review represented one inspection sample.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed activities in the simulator control room, the Technical Support Center, the Emergency Operations Facility, and Operations Support Center during an emergency preparedness drill conducted on February 6, 2007. The inspection focused on the ability of the licensee to appropriately classify emergency conditions, complete timely notifications, and implement appropriate protective action recommendations in accordance with approved procedures.

This review represented one inspection sample.

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to determine whether they were being entered into the licensee's corrective action program at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed.

This is not an inspection sample.

b. Findings

No findings of significance were identified.

.2 Annual Sample Review - Containment Airlocks

a. Inspection Scope

The inspectors selected the containment airlock system for review due to its safety significance and due to recurring airlock test failures. The inspectors determined whether the licensee was accurately identifying problems with the system, whether corrective actions were appropriately focused to address the problems, and whether corrective actions were implemented commensurate with the safety significance of the issues identified.

This review represented one inspection sample.

b. Findings and Observations

Introduction: The inspectors identified a finding of very low safety significance and an associated NCV of TS 5.4, "Procedures," during a review of the containment airlock system. Specifically, the inspectors identified that the licensee had failed to implement airlock maintenance and test procedures that were appropriate to the circumstances after the lower airlock seal system was found to be degraded and subject to frequent failure.

Description: During the first week of January 2007 the licensee conducted repairs to the lower airlock inner door because it failed seal system testing that was conducted to assess an identified air leak from the system. Licensee personnel performed three iterations of maintenance and post-maintenance testing before a satisfactory post-maintenance test result was achieved. The inspectors reviewed the January 2007 maintenance documents and found that, after the original identified leak was repaired and the airlock failed its second post-maintenance test, licensee personnel identified another leak associated with a degraded seal system 3-way ball valve. After licensee personnel rebuilt this 3-way ball valve, the airlock met post-maintenance pressure drop testing acceptance criteria.

The inspectors reviewed the lower and upper airlock performance history. The inspectors noted that both airlocks had experienced a number of seal system failures during operability testing since 2004 due to leaking 3-way ball valves. In particular, the inspectors noted that after licensee maintenance personnel rebuilt a lower airlock inner door ball valve in May 2006 the valve required rebuilding again in June 2006, and most recently in January 2007, in order to meet post-maintenance testing acceptance criteria.

On September 13, 2005, the upper airlock had failed pressure testing due to a degraded 3-way ball valve and the licensee identified that the station had a history of airlock test failures due to aging and internally scored ball valves that had been installed in the airlock system since new construction (CR 05-06747). Following the September 13, 2005, upper airlock test failure, the licensee determined that the 3-way ball valves for both upper and lower airlocks were degraded and subject to premature failure, and established corrective actions intended to replace the ball valves on both airlocks. However, the licensee also determined that replacement ball valve housings were not readily available, and as a result, the corrective actions remained open, and the degraded ball valves remained in service as of the end of this inspection period. The inspectors noted that despite the identification in 2005 that the ball valves were the cause of premature failures of the airlock seal systems, the maintenance and testing schedule for the airlocks remained unchanged in 2006 and the airlocks continued to fail during testing. Furthermore, the inspectors noted that other than a 3-year valve rebuild preventive maintenance task, the standard quarterly and biennial surveillance testing remained the primary process used by the licensee to detect the valve failures.

Several weeks after the January 2007 lower airlock repair, the inspectors noted that licensee personnel had not entered the identification of the leaking ball valve into their

corrective action program. As a corrective action for CR 05-06747, the licensee had revised General Maintenance Instruction (GMI)-0176, "Containment Airlock Door Maintenance," to incorporate an inspection of the 3-way ball valves and to require the generation of a CR if the ball valve housing material condition was found to be degraded. Revision 4 to GMI-0176 was effective on January 26, 2006, and included these requirements. The inspectors questioned the licensee on the lack of a CR associated with the degraded ball valve that was found during the January 2007 maintenance. On February 16, 2007, the licensee entered the issue into their corrective action program (CR 07-14705).

The January 2007 ball valve repair was not entered into the corrective action program until the issue was questioned by inspectors. The inspectors determined that the failure to document conditions requiring ball valve repair in the corrective action program could affect the licensee's ability to identify and implement internal operating experience in order to appropriately address the issue. The inspectors noted that in November 2006, in response to the June 2006 ball valve failure, the licensee completed a corrective action program review to determine whether the ball valve failures represented a trend. Licensee personnel conducted a historical review of CRs and determined that a trend did not exist.

The inspectors determined that the failure of licensee personnel to implement maintenance and test procedures appropriate to the circumstances affecting the safety-related airlock system was a performance deficiency warranting a significance evaluation.

Analysis: The inspectors concluded that the finding was greater than minor in accordance with Appendix B, "Issue Screening," of IMC 0612, "Power Reactor Inspection Reports," dated November 2, 2006. Specifically, the failure to implement appropriate maintenance and test procedures was associated with the Containment 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. In this case, the lower airlock seal system was known to be degraded, known to fail prematurely, had a demonstrated failure rate that exceeded the planned maintenance procedure frequency, and had a demonstrated failure time that was shorter than the planned test intervals. Therefore, the testing and maintenance procedures did not provide reasonable assurance that the containment barrier would perform its function. The inspectors determined that a contributing cause of this finding was the licensee's failure to implement internal operating experience to appropriately revise station processes and procedures to address the known degraded condition of the ball valve to provide assurance that the airlock would perform its function as a containment barrier. The finding affected the cross-cutting area of Problem Identification and Resolution because licensee personnel failed to implement internal operating experience through changes in station processes, procedures, or equipment (P.2(b)).

To determine the risk-significance of the finding, the inspectors considered the June 2006 and January 2007 lower airlock inner door test failures associated with ball valve leakage and performed a Phase 1 review in accordance with Appendix A,

“Determining the Significance of Reactor Inspection Findings for At-Power Situations,” dated March 23, 2007 of IMC 0609, “Significance Determination Process (SDP),” dated November 22, 2005. The inspectors performed a Phase 2 review because the finding represented a degradation of a containment barrier. The inspectors conducted the Phase 2 review using Appendix H, “Containment Integrity Significance Determination Process,” dated May 6, 2004. The inspectors determined that the finding was associated with a Type B large early release frequency. The inspectors reviewed the availability of the lower airlock outer door as a containment barrier. The inspectors determined that the finding did not represent leakage outside the wet-well of greater than 1000 percent containment volume per day for greater than 30 days and did not affect the containment barrier during a shutdown significant time window within 8 days of an outage. As such, the finding was determined to be of very low safety significance (Green).

Enforcement: Technical Specification 5.4, “Procedures,” required the implementation of the applicable procedures recommended in Regulatory Guide 1.33, “Quality Assurance Program Requirements (Operation),” Revision 2, dated February 1978. Regulatory Guide 1.33, Appendix A, Part 9a, stated, “Maintenance that can affect the performance of safety-related equipment should be properly preplanned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances.” Contrary to this requirement, from September 13, 2005, through January 12, 2007, the licensee failed to implement maintenance procedures affecting the safety-related containment airlock that were appropriate to the circumstances of a known degraded condition that resulted in premature system failure. However, because of the very low safety significance of the issue and because the issue has been entered into the licensee’s corrective action program (CR 07-17230), the issue is being treated as an NCV consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 05000440/2007002-02).

#### 4OA3 Event Followup (71153)

##### .1 (Closed) Licensee Event Report (LER) 2006-005-00: Decreasing Instrument Air Pressure Results in Manual Reactor Protection System Actuation

###### a. Inspection Scope

On December 13, 2006, at approximately 4:35 a.m., the licensee manually initiated a reactor protection system (RPS) actuation in response to decreasing reactor pressure vessel (RPV) coolant level. The licensee conservatively took action to manually actuate the RPS when it was determined that RPV coolant level control was challenged. The plant was in Mode 1 operating at 100 percent of rated thermal power at the time of the manual scram. All control rods were fully inserted into the core and RPV coolant level was maintained such that no automatic emergency core cooling system response occurred. The cause of the event was attributed to decreasing instrument air system pressure caused by the separation of a header tubing elbow joint, which resulted in a transient in the reactor feedwater system. The loss of control air caused the condensate system minimum flow recirculation valve to fail open, which caused the hot surge tank level to decrease. The licensee determined that the cause of the joint

separation occurred during plant construction and was due, in part, to inadequate workmanship. Repairs were effected on the elbow joint and extent of condition inspections were conducted on similar accessible joints, 8 percent of all joints. Five of the 345 joints inspected did not meet established insertion criteria, and were clamped to prevent separation. The licensee stated that it planned to inspect and repair all instrument air joints by the end of RFO 12 in 2009.

Two anomalies were experienced due to the manual scram. The first anomaly was one control rod, 42-55, did not initially display a full-in position indication on the initial scram. At 4:36 a.m., the licensee initiated alternate rod insertion as required by plant procedures and confirmed all rods had full-in indication. Upon review, the licensee determined that the rod had fully inserted initially and a position indication malfunction had occurred. The second anomaly occurred because the condensate minimum recirculation flow valve failed to close due to a broken spring in the valve actuator, resulting in a loss of minimum flow to the condensate system. This caused elevated temperatures in the off-gas system charcoal adsorbers. The beds were subsequently purged with nitrogen and temperatures returned to normal. The plant entered Mode 4 on December 17, 2006, restarted on December 18, 2006, and synchronized to the grid on December 19, 2006. No new issues were identified during the inspectors' review. This issue was found to be of minor significance and is therefore not subject to enforcement action in accordance with Section IV of the NRC's Enforcement Policy. This LER is closed.

b. Findings

No findings of significance were identified.

This review represented the first of three inspection samples.

.2 (Closed) LER 2006-006-00: Primary Containment Airlock Door Inoperability Results in Operation Prohibited by Technical Specifications

a. Inspection Scope

A discussion of this event, and an associated licensee-identified NCV, is contained in Section 4OA7 of this report.

b. Findings

No additional findings of significance were identified.

This review represented the second of three inspection samples.

.3 Plant Downpower Due to Lowering Condenser Vacuum

a. Inspection Scope

On March 14, 2007, with the plant at 100 percent power, the inspectors observed licensee response to lowering condenser vacuum. The lowering vacuum was primarily caused by a 3/4-inch x 4-inch tear in a turbine 24-inch drain manifold. On March 15, 2007, a separate 1/4-inch hole was discovered that contributed to condenser in-leakage. The inspectors responded to the control room and observed the licensee's control of reactor thermal power in order to maintain vacuum and condensate water temperature within limits. Power was reduced to 80 percent to maintain plant parameters. The inspectors observed the decision making process to lower power to 60 percent to reduce dose rates to allow personnel access to troubleshoot the condenser in-leakage. The inspectors determined whether the licensee made appropriate notifications of the event.

This review represented the third of three inspection samples.

b. Findings

No findings of significance were identified.

4OA6 Meetings

.1 Exit Meeting

On March 30, 2007, the resident inspectors presented the inspection results to Mr. L. Pearce, Site Vice President, and other members of his staff who acknowledged the findings.

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 results of the heat sink biennial inspection were presented to the Plant Manager, Mr. B. Allen, and other members of licensee management and staff at the conclusion of the inspection on March 2, 2007.

4OA7 Licensee-Identified Violations

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



### Cornerstone: Initiating Events

Perry License Condition C(6) required that the licensee implement and maintain in effect all provisions of the approved fire protection program as described in the Perry Final Safety Analysis Report (FSAR). Section 9A.5, Position C.8 of the FSAR stated that measures had been established to ensure conditions adverse to fire protection, such as failures, malfunctions, deficiencies, deviations, defective components, uncontrolled combustible materials, and nonconformances are promptly identified, reported, and corrected. Contrary to this requirement, on March 7, 2007, plant personnel identified the storage of several 55-gallon oil drums that exceeded allowable transient combustible loading for the turbine lube oil area. The inspectors completed a significance determination of this issue and determined that because the unauthorized transient combustible materials represented a low degradation rating, the finding was of very low safety significance.

### Cornerstone: Barrier Integrity

Technical Specification 3.0.4, "Limiting Condition for Operation (LCO) Applicability," required that a mode change cannot occur when an LCO is not met, unless certain conditions are fulfilled. Contrary to this requirement, on December 18, 2006, the plant changed modes when LCO 3.6.1.2 requirements A.1 and A.2 were not met. Specifically, on December 8, 2006, an air leak on the lower containment airlock inner door inflatable seal air supply tubing was identified and reported to an on-shift reactor operator in the control room. Several personnel failed to identify that the airlock door should have been declared inoperable with LCO 3.6.1.2 required actions implemented. In addition, contrary to the licensee corrective action program, no CR was generated. Subsequently, on December 13, 2006, the plant shut down for an unrelated air leak in the instrument air system. On December 18, 2006, the plant restarted from Mode 4 to Mode 2, then to Mode 1. Not knowing that LCO 3.6.1.2 was not met, licensee personnel allowed the mode changes. On December 31, 2006, a CR was written and upon further review determined the airlock was inoperable on January 1, 2007. The inspectors completed a significance determination of this issue and determined that because the finding did not represent leakage outside the wet-well for greater than 30 days and did not affect the containment barrier during a shutdown significant time window within 8 days of an outage, the finding was of very low safety significance.

ATTACHMENT: SUPPLEMENTAL INFORMATION

## SUPPLEMENTAL INFORMATION

### KEY POINTS OF CONTACT

#### Licensee Personnel

L. Pearce, Vice President-Nuclear  
B. Allen, Perry Plant Manager  
R. D. Gray, Maintenance Rule Program Engineer  
J. Lausberg, Manager, Regulatory Compliance  
G. Halnon, Director, Performance Improvement Initiative  
J. Messina, Manager, Operations  
M. Wayland, Director, Maintenance  
J. Shaw, Director, Nuclear Engineering  
S. Thomas, Manager, Radiation Protection  
R. Siembor, GL 89-13 Program Owner

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

#### Opened and Closed

05000440/2007002-01	NCV	Non-NRC Approved Code Used in Flaw Evaluation of an ASME Class 3 System (Section 1R15 )
05000440/2007002-02	NCV	Procedures Inappropriate to Circumstances for Degraded Containment Lower Airlock Inner Door Seal System (Section 4OA2.2)

#### Closed

05000440/2006-005-00	LER	Decreasing Instrument Air Pressure Results in Manual Reactor Protection System Actuation (Section 71153.1)
05000440/2006-006-00	LER	Primary Containment Airlock Door Inoperability Results in Operation Prohibited by Technical Specifications (Section 71153.2)

## LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety, but rather that selected sections of 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.

### **Section 1R01 Adverse Weather Protection**

IOI-0015; Seasonal Variations; Revision 11

### **Section 1R04 Equipment Alignment**

CR 07-12624; NRC Question on Construction Deficiency Tag Found Hanging on 2P42 HX Supports; dated February 9, 2007

VLI- P45; Emergency Service Water System Valve Lineup Instruction; Revision 7

VLI-C11, Control Rod Drive Hydraulic System (CRDH); Revision 13

CR 07-12542; NRC-Identified Issues During Walkdown of C11 CRDH System; dated January 13, 2007

### **Section 1R05 Fire Protection**

FPI-0IB; Intermediate Building; Revision 5

PAP-1910; Fire Protection Program; Revisions 14 and 15

FPI-A-A02; Periodic Fire Inspections; Revisions 4 and 5

PAP-0204, Housekeeping/Cleanliness Control Program; Revision 17

FPI-0CC; Control Complex; Revision 7

CR 06-8924; Fire Protection Assessment: Inoperable Fire Barrier; dated October 25, 2006

Fire Impairment/Barrier Removal Permit I061CC/288; Appendix R Fire Barrier at CC-638 Unit 1 Division 2; dated November 20, 2006

PTI-P54-P0007; Portable Fire Extinguishers Maintenance Inspection; Revision 6

### **Section 1R07 Heat Sink Performance**

PY-SA-07-68; Snapshot Assessment of GL [Generic Letter] 89-13 Test Program; dated February 23, 2007

Job 1-76-06-32776; Struthers Wells ECC HX [Heat Exchanger] Specification Sheet; revised October 12, 1976

CHI-0004; System Chemical Control; Revision 9

Calculation M39-013; Analysis of HPCS Pump Room Cooler Test; performed October 27, 1999; Revision 1

Calculation M39-015; Analysis of HPCS Pump Room Cooler Test; performed October 24, 2002; Revision 0

Letter PY-CEI/NRR-1121; PNPP [Perry Nuclear Power Plant] Response to Generic Letter 89-13; Service Water System Affecting Safety-Related Equipment; dated January 26, 1990

Letter PY-CEI/NRR-1734L; Implementation of Generic Letter 89-13; Service Water System Problems Affecting Safety-Related Equipment; dated April 8, 1994

ONI-P40; Frazil Ice; Revision 3

ONI-R36-2; Extreme Cold Weather; Revision 2

PTI-GEN-P0024; Mussel Treatment; Revision 8

SOI-P48/P84B; Service Water and Emergency Service Water Chlorination and De-chlorination Systems; Revision 11  
WO 150890; Diver Inspect ESW Forebay and Normal Intake; October 27, 2006  
WO 200190640; Inspect/Clean ESW Alternate Intake Tunnel; performed November 27, 2006  
Underwater Marine Contractors Report on ESW Intake Tunnel Inspection of October 17, 2006  
Underwater Marine Contractors Report on ESW Intake Tunnel Inspection of November 27, 2006  
Perry Evaluation of Underwater Marine ESW Intake Tunnel Inspection on October 17, 2006  
Perry Evaluation of Underwater Marine ESW Intake and Alternate Intake Tunnel Inspection on November 27, 2006  
WO 200012474; PY-PTI-P42P0002; performed on June 26, 2003  
WO 200189225; Inspect Service Water Suction Bays for Silt; October 18, 2006  
WO 200251840, Clean the ESW Pumphouse Normal Intake; February 23, 2007  
Inspection Report; ECC HX B Inspection Done on April 16, 2003; Approved June 24, 2003  
Data Sheet 39EA35-C893-7; HPCS Pump Room Cooler AHU [Air Handling Unit]; Revision G P42-046; Evaluation of ECCW "B" HX Test Data from PTI-P42-P0002; Revision 0 P42-051; Evaluation of ECC "B" HX Test on June 5, 2003; Revision 0; Add A-1  
CR 03-02164; "B" ECC HX Divider Plate Corrosion; April 17, 2003  
CR 05-04031; 2005 NRC Biennial Heat Sink Inspection Report 05-06; May 4, 2005  
CR 05-01777; Evaluate Effectiveness of GL 89-13 Program; March 4, 2005  
CR-06-03150; PCR [Procedure Change Request] - ARI's for ECC HX High Temperatures; June 19, 2006  
CR 07-13304; Heat Exchanger Thermal Performance Calculation Not Verified; January 24, 2007  
CR 07-13311; Software Error Notice Received; January 24, 2007  
CR 07-13328; Installed Version of Proto HX Software Not on Approved List; January 24, 2007  
CR 07-13460; Intake Structure Silt Build-up Monitoring; January 26, 2007  
CR 07-13479; GL 89-13 Quarterly Health Report Has a Yellow Rating; January 26, 2007  
CR 07-14310; PY-SA-07-68 - Threshold for Documenting Potential Conditions Adverse to Safety; February 9, 2007  
CR 07-14312; PY-SA-07-68 - Timeliness of Formal Evaluations; February 9, 2007  
CR 07-14133; PY-SA-07-68 - Engineering Desk Guide Maintenance/Upkeep; February 7, 2007  
CR 07-14365; No CR on Silt Buildup in Intake Tunnel at Time of Inspection; February 10, 2007  
CR 07-14960; Snow in ESW Swale and Electrical Equipment Stored in Swale Path; February 22, 2007  
CR-07-15397; GL 89-13 NRC Inspection: Documentation Issues; February 28, 2007  
CR-07-15398; GL 89-13 NRC Inspection: Inspection of Heat Exchangers; March 1, 2007  
CR-07-15400; GL 89-13 NRC Inspection: Bypass Leakage; March 1, 2007

### **Section 1R11 Licensed Operator Requalification**

Simulator Scenario for the week of February 5, 2007

### **Section 1R12 Maintenance Effectiveness**

PYBP-PES-0001; Plant Engineering Section Business Practice; Revision 14  
Maintenance Rule Functions Currently Classified as (a)1; dated September 7, 2006  
CR 07-12806; HPCS Waterleg Pump Making Abnormal Noise; dated January 17, 2007  
CR 06-9967; HPCS Waterleg Pump Leaking Oil - Recurring Issue; dated November 14, 2006  
CR 06-9691; SVI-E22-T2002 Was Not Performed Following HPCS Waterleg Pump Work; dated November 9, 2006  
CR 06-03277; HPCS Pump Seal Leaking 30 DPM [drops per minute]; dated July 24, 2006

CR 05-06757; HPCS Rendered Inoperable Due to Waterleg Pump Failure; dated September 20, 2005  
CR 04-06649; HPCS Waterleg Pump Discharge Pressure Low Alarm Locked in during SVI-E22-T2001; dated December 17, 2004  
CR 02-03972; HPCS Pump Failed to Start; dated October 23, 2002  
WO 200214651; 3-Way Valve Inner Door Large Seal Lower; dated June 23, 2006  
WO 200226158; Lower Containment Airlock Outer Door; dated September 9, 2006  
WO 200214487; Lower Airlock; dated June 14, 2006

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

NOBP-OP-1001; Clearance Program; Revision 0  
PYBP-POS-2-2; RCIC Outage (Yellow) Protected Equipment Posting Checklist; Revision 6/19/06  
NOP-OP-1007; Risk Determination; Revision 4  
PSA [Probabilistic Safety Assessment] Risk Assessment; Period 8, Week 8; Revision 1  
PSA Risk Assessment; Period 8, Week 10; Revision 0  
PSA Risk Assessment; Period 8, Week 10; Revision 1  
PSA Risk Assessment; Period 8, Week 11; Revision 1  
PSA Risk Assessment; Period 8, Week 12; Revision 0  
Perry Work Implementation Schedule; Period 8, Week 8  
Perry Work Implementation Schedule; Period 8, Week 10  
Perry Work Implementation Schedule; Period 8, Week 11  
Perry Work Implementation Schedule; Period 8, Week 12

### **Section 1R15 Operability Evaluations**

CR 07-12453; Waterleg Pump Oil Level Influenced by Airflow from 3000 Horsepower Motor; dated January 10, 2007  
Trico Opto-Matic Oilers Instructional Manual for Glass, LS, or SS models  
CR 07-15144; Main Steam SRV [Safety Relief Valve] Solenoid Coils Incorrectly Torqued By Vendor; dated February 26, 2007  
CR 07-14065; Prompt Operability Determination; Revision 0  
CR 07-14065; Prompt Operability Determination; Revision 1  
CR 07-14065; Prompt Operability Determination; Revision 2  
Ultrasonic Testing (UT) Indication Report BOP-UT-07-024, ESW Weld DCP-860224-22; dated February 6, 2007  
Ultrasonic Erosion/Corrosion Examination Report BOP-UT-07-025, ESW Pipe Segment EC-60; dated February 7, 2007  
Structural Integrity Associates Evaluation of Through-Wall Flaw in Class 3 Piping Using Code Case N-513-1; dated February 8, 2007  
Structural Integrity Associates Evaluation of Through-Wall Flaw in Class 3 Piping Using Code Case N-513-2; dated February 7, 2007  
ASME Code Case N-513-1, Evaluation Criteria for Temporary Acceptance of Flaws in Moderate Energy Class 2 or 3 Piping Section XI, Division 1; dated March 28, 2007  
CR 07-14065; Pinhole Leak Identified on "B" ESW Outlet of the "B" ECC Heat Exchanger; dated February 6, 2007.  
CR 07-13802; Valve Exceeds Thrust Limit; dated January 31, 2007

### **Section 1R19 Post-Maintenance Testing**

WO 200231682; Diesel Generator Start and Load Division 3; dated January 11, 2007  
WO 200134464; HPCS Pump and Valve Operability Test; dated January 10, 2007  
WO 200246244; Lower Containment Airlock Reactor Door; dated January 16, 2007  
WO 200247903; Lower Airlock Inner Door Test; dated January 14, 2007  
WO 200247074; Lower Airlock Inner Door Test; dated January 8, 2007  
WO 200247254; Lower Airlock Inner Door Test; dated January 11, 2007

### **Section 1R20 Refueling and Outage Activities**

RFO11 Pre-Outage Shutdown Safety Review  
RFO11 Level 2 Risk Management; dated March 30, 2007  
RFO11 Level 2 Schedule; dated March 30, 2007

### **Section 1R22 Surveillance Testing**

FTI-E0013; New Fuel Receipt and Storage; Revision 14  
CR 07-12815; Lack of New F11 Fuel Handling Bridge Operators; dated January 17, 2007  
CR 07-12904; Fuel Bundle Moved to 4-Bundle Rack Could Not Be Ungrappled; dated January 18, 2007  
CR 07-13758; Bridge/Rail Interference Prevents Operations; dated January 31, 2007  
CR 06-01364; PY-C-06-01 No Documentation for New Fuel 4-Bundle Rack Cell Spacers; dated March 22, 2007  
Control Room Logs; dated January 17-18, 2007  
SVI-R43-T1317; Diesel Generator Start and Load Division 1; Revision 12  
CR 07-13402; Incorrect Installation of Temporary Alteration; dated January 25, 2007  
SVI-R43-T1348; Division 2 Standby Diesel Generator 24-Hour Run; Revision 2  
SVI- E51-T200; RCIC Pump and Valve Operability Test; Revision 26  
CR 07-14946; Improper Indications During RCIC Testing; dated February 22, 2007  
SVI-R43-T1317; Diesel Generator Start and Load Division 1; Revision 12  
SOI-R43; Division 1 and 2 Diesel Generator System; Revision 29  
CR 07-14551; Lube Oil Test Results for SLC [Standby Liquid Control] Pumps Gear Box Are Questionable; dated February 14, 2007  
CR 06-9176; Level Display for the SLC Tank Reading Low/Erratic; dated October 31, 2006  
SVI-C41-T2001A; Standby Liquid Control A Pump and Valve Operability Test; Revision 11

### **Section 1R23 Temporary Plant Modifications**

PAP-0204; Housekeeping/Cleanliness Control Program; Revision 17  
PAP-1402; Temporary Modification Control; Revision 13  
WO 200224784; Leak Diversion Devices on the MFW [Main Feedwater] Pump Seals

### **Section 1EP6 Drill Evaluation**

CR 07-14513; 2/6/07 E-Plan, Control Room Simulator Crew Performance; dated February 6, 2007  
Emergency Plan Drill Guide for February 6, 2007

### **Section 4OA2 Identification and Resolution of Problems**

CR 07-14705; Document Leakage on Lower Airlock Inner Door Ball Valve - Repaired 200246244; dated January 12, 2007

CR 07-14416; PM [Preventative Maintenance] On Engineering Hold Passed Its Deferral Date With No Other Extension; February 12, 2007  
CR 07-13179; Small Air Leak On Upper Inner Airlock Door (1P52 Supply To Door); dated January 22, 2007  
CR 07-12336; Technical Specification Bases for Airlock Technical Specification (3.6.1.2) Overly Restrictive; dated January 8, 2007  
CR 06-6825; Second Satisfactory Air Lock Door Decay Test Not Accepted; dated September 22, 2006  
CR 06-6079; Lower Airlock Door As Found Condition; September 6, 2006  
CR 06-11996; Lower Containment Airlock Inner Door Check Valve Has an Air Leak; dated December 8, 2006  
CR 06-10130; NRC CAP [Corrective Action Program] Effectiveness Inspection: Work Performed On Containment Airlock Without Adequate Work Instruction; dated November 6, 2006  
CR 06-02801; Airlock Lower Inner Door 3-way Valve (1P53F0578B) Found Not Assembled Correctly; dated June 21, 2006  
CR 06-02730; Unplanned Inoperability for Lower Containment Airlock Inner Door; dated June 16, 2006  
CR 06-02703; Lower Containment Airlock Inner Door Large Seal; dated June 13, 2006  
CR 05-07117; SVI Unacceptable Due to Leakage In Excess of Acceptance Criteria; dated October 13, 2005  
Control Room Logs; dated June 13 through June 23, 2006

**Section 40A3 Event Followup and Notices of Enforcement Discretion**

LER 2006-005-000; Decreasing Instrument Air Pressure Results In Manual Reactor Protection System Actuation; dated February 9, 2007  
LER 2006-006-000; Primary Containment Airlock Door Inoperability Results In Operation Prohibited by Technical Specifications; dated March 1, 2007

**Section 40A7 Licensee-Identified Violations**

FPI-TB; Turbine Building, Revision 3; dated November 22, 2006  
CR 07-15930; Housekeeping in Turbine Lube Oil Storage Room Warrants Attention; dated March 7, 2007

## LIST OF ACRONYMS USED

°F	degrees Fahrenheit
ASME	American Society of Mechanical Engineers
CFR	Code of Federal Regulations
CR	condition report
CRD	control rod drive
DC	direct current
ECC	emergency closed cooling
EDG	emergency diesel generator
ESW	emergency service water
FENOC	FirstEnergy Nuclear Operating Company
FPI	Fire Plan Instruction
FSAR	Final Safety Analysis Report
GMI	General Maintenance Instruction
HPCS	high pressure core spray
IMC	Inspection Manual Chapter
LCO	limiting condition for operation
LER	Licensee Event Report
NCV	non-cited violation
NRC	Nuclear Regulatory Commission
RCIC	reactor core isolation cooling
RFO	Refueling Outage
RPS	reactor protection system
RPV	reactor pressure vessel
SSC	structures, systems, and components
SVI	surveillance instruction
TS	Technical Specification
UHS	Ultimate heat sink
USAR	Updated Safety Analysis Report
VLI	Valve Lineup Instruction
WO	Work Order