

October 18, 2001

Mr. John K. Wood
Vice President - Nuclear
FirstEnergy Nuclear Operating Company
P. O. Box 97, A200
Perry, OH 44081

SUBJECT: PERRY NUCLEAR POWER PLANT
NRC INSPECTION REPORT 50-440/01-12

Dear Mr. Wood:

On September 30, 2001, the NRC completed an inspection at your Perry Nuclear Power Plant. The enclosed report documents the inspection findings which were discussed on October 5, 2001, 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.

No findings of significance were identified.

Since September 11, 2001, the Perry Nuclear Power Plant has assumed a heightened level of security based on a series of threat advisories issued by the NRC. Although the NRC is not aware of any specific threat against nuclear facilities, the heightened level of security was recommended for all nuclear power plants and is being maintained due to the uncertainty about the possibility of additional terrorist attacks. The steps recommended by the NRC include increased patrols, augmented security forces and capabilities, additional security posts, heightened coordination with local law enforcement and military authorities, and limited access of personnel and vehicles to the site.

The NRC continues to interact with the Intelligence Community and to communicate information to the Perry Nuclear Power Plant. In addition, the NRC has monitored maintenance and other activities which could relate to the site's security posture.

In accordance with 10 CFR 2.790 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). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/NRC/ADAMS/index.html> (the Public Electronic Reading Room).

Sincerely,

Original signed by
Christine A. Lipa

Christine A. Lipa, Chief
Branch 4
Division of Reactor Projects

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

Enclosure: Inspection Report 50-440/2001-12

cc w/encl: B. Saunders, President - FENOC
N. Bonner, Director, Nuclear
Maintenance Department
G. Dunn, Manager, Regulatory Affairs
K. Ostrowski, Director, Nuclear
Services Department
T. Rausch, Director, Nuclear
Engineering Department
R. Schrauder, General Manager,
Nuclear Power Plant Department
A. Schriber, Chairman, Ohio Public
Utilities Commission
Ohio State Liaison Officer
R. Owen, Ohio Department of Health

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

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

Report No: 50-440/01-12

Licensee: FirstEnergy Nuclear Operating Company (FENOC)

Facility: Perry Nuclear Power Plant, Unit 1

Location: P.O. Box 97 A200
Perry, OH 44081

Dates: August 23 through September 30, 2001

Inspectors: Gerald J. McCoy, Acting Senior Resident Inspector
Rene Vogt-Lowell, Resident Inspector
Katherine Green-Bates, Reactor Engineer
Steve Campbell, Senior Resident Inspector, Fermi

Approved by: Christine A. Lipa, Chief
Branch 4
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000440-01-12; on 08/23-09/30/2001; FirstEnergy Nuclear Operating Company; Perry Nuclear Power Plant. Reactor Operations.

This report covers a 6-week routine inspection. The inspection was conducted by resident inspectors and a regional projects inspector. No significant findings were identified by the inspectors.

The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609 "Significance Determination Process" (SDP). The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website at <http://www.nrc.gov/NRR/OVERSIGHT/index.html>. Findings for which the SDP does not apply are indicated by "No Color" or by the severity level of the applicable violation.

A. Inspector Identified Findings

No findings of significance were identified.

B. Licensee Identified Findings

No findings of significance were identified.

Report Details

Summary of Plant Status: The plant began the inspection period with Unit 1 at 100 percent power. On September 20, 2001, the licensee identified a potential non-conservative thermal heat balance calculation due to incorrect data input for the moisture content of the steam exiting the reactor. Until an investigation is completed, the licensee reduced reactor power by 4 megawatts (thermal) to approximately 99.9 percent power. On September 23, 2001, power was temporarily reduced to 94 percent in for turbine valve testing. Power was returned to 99.9 percent later that day and was maintained at that level for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R04 Equipment Alignment (71111.04)

.1 Partial System Walkdown

a. Inspection Scope

The inspectors used critical drawings 302-0791 and -0792, "Emergency Service Water," and Perry Operations Manual, Valve Lineup Instruction Procedure VLI-P45, "Emergency Service Water System," to verify valves were aligned correctly, pipe hangers were installed correctly and were functional, and that electrical power was available for the emergency service water system.

The inspectors used critical drawing 302-0212, "Service Water," and Perry Operations Manual, Valve Lineup Instruction Procedure VLI-P41, "Service Water System (Unit 1)," to verify valves were aligned correctly, pipe hangers were installed correctly and were functional, and that electrical power was available for the service water system.

b. Findings

No findings of significance were identified.

.2 Complete System Walkdown

a. Inspection Scope

The inspectors reviewed the equipment alignment of the Reactor Core Isolation Cooling (RCIC) system to identify any discrepancies that could impact the function of the system thus increasing overall risk to the plant. This inspection included walkdowns of accessible portions of the RCIC system as well as review of work requests, condition reports (CRs) and component performance history. During the walkdown, the inspectors compared the configuration of the system to the applicable operating procedures to determine whether the configuration was appropriate for existing conditions.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q)

a. Inspection Scope

The inspectors walked down selected risk significant areas looking for any fire protection issues related to: the control of transient combustibles, ignition sources, fire detection equipment manual suppression capabilities, passive suppression capabilities, automatic suppression capabilities, and barriers to fire propagation. Areas walked down include the accessible portions of the Emergency Service Water Building, the Auxiliary Building, and the Control Complex.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

a. Inspection Scope

The inspectors observed requalification training activities for Reactor Operators and Senior Reactor Operators to assess operator performance. The inspectors also assessed the evaluator's critique. The two simulator sessions observed were anticipated transient without scram (ATWS) with loss of high pressure injection and ATWS with loss of level indication.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12Q)

a. Inspection Scope

The inspectors reviewed equipment issues, surveillance test failures, and other performance problems for the systems or components listed below. The inspectors reviewed whether the components were properly scoped in accordance with the Maintenance Rule, whether failures were properly characterized, and whether the performance criteria were appropriate. In addition, the inspectors reviewed CRs associated with implementation of the maintenance rule to determine if the licensee was identifying problems and entering them in the corrective action program. The problem identification and resolution (PIR) CRs reviewed are listed in the attached List of Documents Reviewed.

- Reactor Core Isolation Cooling System.
- Failure of the Division 3 Emergency Diesel Generator to start during performance of SVI -E22-T1319, "DIV 3 D/G monthly SVI run.
- Reactor Recirculation System, B33

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors evaluated the adequacy, accuracy, and completeness of plant risk assessments performed prior to any changes in plant configuration for maintenance activities or in response to emergent conditions. When applicable, the inspectors determined if the licensee entered the appropriate risk category in accordance with plant procedures. Specifically, the inspectors reviewed:

- Containment pool return inboard isolation valve (1G41F0140) was removed from service for maintenance.
- "A" residual heat removal pump was removed from service in order to replace a leaking seal.
- Division 1 emergency diesel generator was removed from service for scheduled maintenance.

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

a. Inspection Scope

The inspectors reviewed the cumulative effect of the following operator workarounds to determine whether the cumulative conditions had a significant effect on plant risk or on the operators' ability to respond to a transient or accident situation. Active operator workarounds on the following systems were reviewed:

- P22, Mixed Bed Backwash Inlet Valve 0P22-F475 - seat leakage causes high conductivity
- M21, 0M21A&B, Containment Access/Miscellaneous Area HVAC - Troubleshoot low flow condition, perform flow balance.

- P72, 0P72C0001D, Plant Underdrain System - Pipe Restriction Downstream of Pump Causes Relief to Lift.

0P72C0001F, Plant Underdrain System - Pump Runs with no Sign of Discharge Flow.

0P72C0002A, Plant Underdrain System - Pump Making Noises (bearing failure).

- C41, 1C41C0001A&B, Standby Liquid Control Pumps A & B on Increased Frequency Surveillance due to High Vibrations.
- P84, 0P84C0008, Cooling Tower Chlorination Pump - troubleshoot low flow condition.
- N27, 1N27C0004, Motor Feed Pump - oil leak.
- C41, 1C41C0001A&B, Standby Liquid Control Pumps A & B on Increased Frequency Surveillance due to High Vibrations.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors selected the activities listed below for review. Completed work packages were reviewed and/or tests were observed to determine whether test requirements were met. The inspectors also reviewed other documents, such as the USAR, Technical Specifications, and Maintenance Procedures to determine if the testing was sufficient to demonstrate that the systems and components were capable of performing their intended safety functions.

- WO 00-4751, Replacement of A.1 Subloop Relief Valve on Reactor Recirculation Loop A
- WO 01-0141, "A" Residual Heat Removal Pump A Seal Replacement
- WO 00-7844, Diesel Generator Building Ventilation Outside Air Damper Actuator

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors witnessed or reviewed the test data for the surveillance tests listed below to determine whether requirements were met, consistent with applicable sections of Technical Specifications, USAR, and Plant Procedures. The inspectors reviewed whether test control was properly coordinated with the control room and performed in the sequence specified in the surveillance instruction and if test equipment was properly calibrated and installed to support the surveillance tests.

- SVI-E12-T2001, "RHR A Pump and Valve Operability Test"
- SVI-B21-T0076A, "MSL Low Condenser Vacuum Channel A Functional Test"
- SVI-E31-T0074E, "MSL High Flow Channel A Functional for 1E31-N687A and 1E31-N689A"
- SVI-C41-T2001A, "Standby Liquid Control A Pump and Valve Operability Test"

b. Findings

No findings of significance were identified.

4. **OTHER ACTIVITIES (OA)**

4OA1 Performance Indicator Verification (71151)

.1 Safety System Unavailability Performance Indicators

a. Inspection Scope

The inspectors reviewed licensee's data for the performance indicators (PIs) listed below to verify the accuracy and completeness of plant performance indicator data by comparison to confirmatory plant records and data available in the plant. For the time periods indicated, the inspectors reviewed: (1) Operator Logs and Daily Plant Status Reports to assess the hours that the system was unavailable during maintenance, and (2) CRs related to system equipment issues. The inspectors also verified that the licensee's data met the guidance in NEI 99-02, "Regulatory Assessment Performance Indicator Guidelines," Revision 0.

- Safety System Unavailability, heat removal system (reactor core isolation cooling)
- Safety System Unavailability, residual heat removal system

b. Findings

No findings of significance were identified.

4OA5 Other

(Closed) Licensee Event Report 50-440/2001-003-00: "Loss of Feedwater Scram and Specified System Actuations including Emergency Core Cooling System (ECCS) Injection." This LER describes an event on July 11, 2001 when a fuse in the loop B analog instrument panel failed, resulting in an automatic reactor scram. This event was monitored as discussed in Inspection Report number 50-440/2001-10. All ECCS equipment was available and responded properly. High pressure core spray (HPCS) and the reactor core isolation cooling system (RCIC) actuated and injected into the vessel as a result of loss of normal feedwater flow. The feedwater system was not available as a result of a blown fuse in the power supply for control room instruments. The initial risk assessment conducted by the Resident Inspectors and the Regional Senior Risk Analyst concluded that this event was not risk significant. The investigation and associated corrective actions identified for this scram are covered by the licensee's CRs numbers 01-2705 and 01-2706. This LER is closed.

4OA6 Meetings

.1 Exit Meeting

The inspector presented the inspection results to Mr. John Wood, Site Vice President and other members of licensee management at the conclusion of the inspection on October 5, 2001. The licensee acknowledged the findings presented. No proprietary information was identified.

KEY POINTS OF CONTACT

Licensee

J. Wood, Vice President-Nuclear
B. Boles, Operations Manager
G. Dunn, Manager, Regulatory Affairs
D. Gudger, Supervisor, Compliance
T. Lentz, Manager, Design Engineering
K. Ostrowski, Director, Nuclear Services Department
D. Phillips, Manager, Plant Engineering
T. Rausch, Director, Nuclear Engineering Department
R. Schrauder, General Manager, Nuclear Power Plant Department
R. Strohl, Superintendent, Plant Operations

LIST OF ITEMS OPENED AND CLOSED

Opened

none.

Closed

| | | |
|-----------------|-----|--|
| 440/2001-003-00 | LER | Loss of Feedwater Scram and Specified System Actuations including ECCS Injection |
|-----------------|-----|--|

LIST OF ACRONYMS USED

| | |
|-------|---|
| ADAMS | Agencywide Documents Access and Management System |
| ATWS | Anticipated Transient Without Scram |
| CFR | Code of Federal Regulations |
| CR | Condition Report |
| ECSS | Emergency Closed Cooling System |
| EDG | Emergency Diesel Generator |
| ESW | Emergency Service Water |
| FENOC | FirstEnergy Nuclear Operating Company |
| HPCS | High Pressure Core Spray |
| LER | Licensee Event Report |
| NEI | Nuclear Energy Institute |
| NRC | Nuclear Regulatory Commission |
| NRR | Office of Nuclear Reactor Regulation |
| PARS | Publicly Available Records |
| PI | Performance Indicator |
| PIR | Problem Identification and Resolution |
| RCIC | Reactor Core Isolation Cooling |
| RHR | Residual Heat Removal |
| SDP | Significance Determination Process |
| SRM | Source Range Monitor |
| SVI | Surveillance Instruction |
| TS | Technical Specifications |
| USAR | Updated Safety Analysis Report |
| WO | Work Order |

LIST OF DOCUMENTS REVIEWED

1R04 Equipment Alignment

| | | |
|------------------|---|-------------------|
| Drawing 302-0791 | Emergency Service Water, Revision JJ | July 25, 2001 |
| Drawing 302-0792 | Emergency Service Water, Revision FF | April 17, 2000 |
| VLI-P45 | Emergency Service Water System, Revision 4 | February 2, 2001 |
| Drawing 302-0212 | Service Water, Revision TT | May 2, 2001 |
| VLI-P41 | Service Water System (Unit 1), Revision 4 | October 18, 1999 |
| Drawing 302-0631 | Reactor Core Isolation Cooling System, Rev. Z | March 22, 2001 |
| Drawing 302-0632 | Reactor Core Isolation Cooling System, Rev. HH | March 22, 2001 |
| CR 01-3016 | RCIC Watertight door left open | August 7, 2001 |
| CR 01-0325 | Inadequate thread engagement | January 30, 2001 |
| CR 01-0336 | Incorrect scheduling of pressure switch calibration | January 30, 2001 |
| CR 01-0402 | Trip/throttle valve body-to-bonnet steam leakage | February 5, 2001 |
| CR 01-0699 | Limiterque gear box grease | February 21, 2001 |

1R12 Maintenance Rule Implementation

| | | |
|------------|---|--------------------|
| CR 97-2089 | 1E51F040 Failed its Seat Leakage Test | September 11, 1997 |
| CR 01-0262 | OE RCIC Steam Supply Bypass Valve | November 15, 2000 |
| CR 01-0075 | RCIC Steam Supply 1 st & 2 nd Drain | January 8, 2001 |
| CR 01-0223 | RCIC Trip Throttle Valve | January 20, 2001 |
| CR 01-0223 | Steam Supply Line to RCIC Inboard Isolation Valve | January 21, 2001 |
| CR 01-0874 | RCIC Head Spray Piping | February 26, 2001 |
| CR 01-1084 | RCIC Valve Appears to be Wrong Type for Application | March 4, 2001 |
| CR 01-1537 | RCIC Actuation Logic System | March 19, 2001 |
| CR 01-1993 | RCIC Test Return to CST | April 29, 2001 |
| CR 01-2338 | RCIC Test Relief Valve Failed As-Found Pressure Test | May 30, 2001 |

| | | |
|------------|---|-----------------|
| CR 01-2982 | RCIC Steam Admission Valve | August 5, 2001 |
| CR 01-3174 | Expansion of Part 21 from ESI to include RCIC | August 27, 2001 |
| CR 01-2651 | Failure of the Division 3 Emergency Diesel Generator to start during performance of SVI -E22-T1319, "DIV 3 D/G monthly SVI run" | July 26, 2001 |
| CR 01-2117 | Manual Scram Inserted Due to High Recirc Pump "B" Seal Temperature and Recirc Pump "A" Failed to Start in Slow During Downshift | May 8, 2001 |
| CR 01-2145 | B33 "A" Pump Motor LFMG High Voltage | May 8, 2001 |
| CR 01-2220 | Recirc Pump Temperature Recorder (1B33-R601) is Erratic | May 17, 2001 |
| CR 01-2517 | New Unplanned Capacity Loss Factor Maintenance Rule Performance Criteria Exceeded | June 13, 2001 |
| CR 01-3020 | Unplanned Capacity Loss Factor Definition Unclear for Maintenance Rule Expert Panel | August 8, 2001 |

1R16 Operator Work-Arounds

| | |
|-------------|---|
| WO 98-5220 | Valve Appears to Leak past Seat with Unit in Standby |
| WO 01-10786 | Re-balance of 0M21 "A" Train |
| WO 01-10787 | Re-balance of 0M21 "B" Train |
| WO 99-10511 | Pipe Restriction Downstream of Pump Causing Relief Valve to Lift |
| WO 00-5000 | Pump Runs with No Sign of Discharge Flow |
| WO 01-3225 | Underdrain MH #6 Pump Making Noises Indicative of Bearing Failure |
| WO 01-0428 | SVI C41T2001A is on Increased Frequency SVI Performance Due to High Vibration |
| WO 00-6344 | Pump Discharge Pressure Gauge is Overranging |
| WO 01-6952 | Motor Feed Pump Motor Front Bearing has >100 dpm Oil Leak |

1R19 Post-Maintenance Testing

| | |
|------------|---|
| WO 00-4751 | Replacement of A.1 Subloop Relief Valve on Reactor Recirculation Loop A |
| WO 01-0141 | Residual Heat Removal Pump A seal replacement, Revision 0 |
| WO 00-7844 | Diesel Generator Building Ventilation Outside Air Damper Actuator |

1R22 Surveillance Testing

| | | |
|-----------------|--|--------------------|
| SVI-E12-T2001 | RHR A Pump and Valve Operability Test, Revision 10 | August 16, 2001 |
| SVI-B21-T0076-A | MSL Low Condenser Vacuum Channel A Functional for 1B21-N675A, Revision 2 | September 30, 1988 |
| SVI-E31-T0074E | MSL High Flow Channel A Functional for 1E31-N687A and 1E31-N689A | March 15, 1989 |
| SVI-C41-T2001A | Standby Liquid Control A Pump and Valve Operability Test | March 23, 2000 |

4OA1 Performance Indicator (PI) Verification

| | | |
|------------|---|-------------------|
| CR 01-3001 | RCIC Watertight Door Found Open | August 6, 2001 |
| CR 00-3610 | RCIC Declared Inop | November 20, 2000 |
| CR 01-0246 | RHR support (snubber) | January 23, 2001 |
| CR 01-0265 | RHR E-12 Piping Movement Out of Specification | January 25, 2001 |
| CR 01-0320 | Wrong RCIC Fuses Pulled | January 29, 2001 |
| CR 01-0329 | Evaluate 1E51F0510 Valve NDE/PT Requirement Trip & Throttle Valve | January 30, 2001 |
| CR 01-0419 | RHR Post Accident Monitoring Recorder was Inoperable | February 8, 2001 |
| CR 01-0817 | An 8 hr RHR System Leakage Test Was Conducted | March 3, 2001 |
| CR 01-1031 | Lift Test Failure of 1E12F0005 Relief Valve | March 13, 2001 |
| CR 01-1085 | Inadequate Communication Results of Identical Unacceptable Results in RHR Test. | April 1, 2001 |

| | | |
|------------|---|---|
| CR 01-1249 | Walkdown of RHR "B" Room | May 2, 2001 |
| CR 01-2980 | RCIC SVI Termination Due To Inability to Meet Test Conditions | August 4, 2001 |
| | Performance Indicator Data RCIC & RHR Records For Perry Nuclear Power Plant | November 2000- August 2001 |
| | Common Performance Indicators For Perry Nuclear Power Plant and Records | Last Quarter 2000 First 2 Quarters 2001 |
| | NEI 99-02; Regulatory Assessment Performance Indicator Guideline | Revision 0 |
| | Control Room Logs, All Shifts, November 25 -26, 2000 | November 25 -26, 2000 |
| | Control Room Logs, All Shifts, November 20 -23, 2000 | November 20 -23, 2000 |
| | Control Room Logs, Day Shift, December 24, 2000 | December 24, 2000 |
| | Control Room Logs, Day Shift, January 20, 2001 | January 20, 2001 |
| | Control Room Logs, All Shifts, January 29-31, 2001 | January 29-31, 2001 |
| | Control Room Logs, All Shifts, March 9 & 10, 2001 | March 9 & 10, 2001 |
| | Control Room Logs, All Shifts, March 21-26, 2001 | March 21-26, 2001 |
| | Control Room Logs, All Shifts, June 17, 2001 | June 17, 2001 |
| | Control Room Logs, All Shifts, June 22, 2001 | June 22, 2001 |
| | Control Room Logs, All Shifts, August 3-4, 2001 | August 3-4, 2001 |