April 15, 2003

Mr. William R. Kanda
Vice President - Nuclear, Perry
FirstEnergy Nuclear Operating Company
P. O. Box 97, A210
Perry, OH 44081

SUBJECT: PERRY NUCLEAR POWER PLANT
NRC INTEGRATED INSPECTION REPORT 50-440/03-03

Dear Mr. Kanda:

On March 31, 2003, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Perry Nuclear Power Plant. The enclosed report documents the inspection findings which were discussed on March 28, 2003, with you and other members of your staff.

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

Based on the results of this inspection, the inspectors identified three findings of very low safety significance (Green). Two of the three findings were determined to involve violations of NRC requirements. However, because of their very low safety significance and because they have been entered into your corrective action program, the NRC is treating these findings as Non-Cited Violations in accordance with Section VI.A.1 of the NRC's Enforcement Policy.

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, 801 Warrenville Road, Lisle, IL 60532-4351; 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.

Since the terrorist attacks on September 11, 2001, the NRC has issued two Orders (dated February 25, 2002, and January 7, 2003) and several threat advisories to licensees of commercial power reactors to strengthen licensee capabilities, improve security force readiness, and enhance access authorization. The NRC also issued Temporary Instruction 2515/148 on August 28, 2002, that provided guidance to inspectors to audit and inspect licensee implementation of the interim compensatory measures (ICMs) required by the February 25th Order. Phase 1 of TI 2515/148 was completed at all commercial nuclear power plants during calendar year (CY) '02, and the remaining inspections are scheduled for completion in CY '03. Additionally, table-top security drills were conducted at several licensees

to evaluate the impact of expanded adversary characteristics and the ICMs on licensee protection and mitigative strategies. Information gained and discrepancies identified during the audits and drills were reviewed and dispositioned by the Office of Nuclear Security and Incident Response. For CY '03, the NRC will continue to monitor overall safeguards and security controls and conduct inspections, and will resume force-on-force exercises at selected power plants. Should threat conditions change, the NRC may issue additional Orders, advisories, and temporary instructions to ensure adequate safety is being maintained at all commercial power reactors.

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/reading-rm/adams.html** (the Public Electronic Reading Room).

Sincerely,

/RA/

Mark A. Ring, Chief
Branch 1
Division of Reactor Projects

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

Enclosure: Inspection Report 50-440/03-03
w/Attachment: Supplemental Information

cc w/encl: B. Saunders, President - FENOC
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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-440
License No:	NPF-58
Report No:	50-440/03-03
Licensee:	FirstEnergy Nuclear Operating Company (FENOC)
Facility:	Perry Nuclear Power Plant, Unit 1
Location:	P.O. Box 97, A210 Perry, OH 44081
Dates:	December 29, 2002 through March 31, 2003
Inspectors:	R. Powell, Senior Resident Inspector J. Ellegood, Resident Inspector R. Schmitt, Emergency Preparedness Inspector
Approved by:	Mark A. Ring, Chief Branch 1 Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000440/2003-003; First Energy Nuclear Operating Company; on 12/29/02-03/31/03; Perry Nuclear Power Plant. Fire Protection, Surveillance Testing, Event Follow-up.

This report covers a 3-month period of baseline resident inspection and a regional emergency preparedness inspection. The inspection was conducted by resident inspectors and by a regional emergency preparedness inspector. This inspection identified three Green issues, two of which involved Non-Cited Violations (NCVs). The significance of most findings is indicated by their color (Green, White, Yellow, Red) using Inspection Manual Chapter 0609, "Significance Determination Process" (SDP). Findings for which the SDP does not apply may be "Green" or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. Inspector-Identified and Self-Revealing Findings

Cornerstone: Initiating Events

Green. A self-revealing Non-Cited Violation of Technical Specification (TS) 5.4 occurred on January 31, 2003, when technicians bypassed two local power range monitoring (LPRM) detectors without using the appropriate procedure. As a result, average power range monitor (APRM) C was not bypassed prior to bypassing the LPRMs and the operating crew was not aware of the activities in progress.

The inspectors determined the violation was more than minor because it can reasonably be viewed as a precursor to a significant event. In other circumstances, the technician could have caused a half scram. In this case, the technician caused one of eight APRMs to read low. The finding is of very low safety significance (Green) because no protective function occurred and operators rapidly became aware of the discrepant APRM reading. (Section 1R22)

Cornerstone: Mitigating Systems

Green. The inspectors identified a licensee performance deficiency in that the licensee failed to promptly identify and correct a degraded fire barrier between the Division 3 and Division 1 switchgear rooms. The condition existed since May 2001 but was not identified until May 2002. Following identification of the degradation, the licensee established an hourly fire watch, but 10 months later had yet to correct the degraded fire barrier.

The inspectors determined that the finding was more than minor because the failure to identify and repair degraded fire barriers in a timely manner, as well as failing to take actions to preclude recurrence, could reasonably be viewed as a precursor to a significant event. This finding was not suitable for Significance Determination Process analysis. This issue was, however, determined to be of very low safety significance (Green) because the separation of redundant trains of safe shutdown equipment was not compromised. (Section 1R05)

Green. The inspectors identified a licensee performance deficiency involving a Non-Cited Violation for failure to promptly identify and correct a condition adverse to quality in that the licensee did not recognize that during chemical addition to the emergency closed cooling water (ECCW) system, the system is cross-connected to non-safety piping. The licensee had previously identified that ECCW was rendered inoperable during periodic testing of check valves due to cross-connection with non-safety piping, but failed to thoroughly evaluate the extent of condition and recognize a similar condition existed during routine chemical additions.

The inspectors determined that the finding was more than minor because the failure to adequately identify extent of condition and take corrective actions could reasonably be viewed as a precursor to a significant event and in this case did affect the operability of ECCW systems. This issue was of very low safety significance (Green) primarily because of the short duration the inoperable condition existed. (Section 4OA3.4)

B. Licensee-Identified Violations

Two violations of very low safety significance which 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 are listed in Section 4OA7 of this report.

Report Details

Summary of Plant Status

The unit began the inspection period at 100 percent power and, with the exception of weekly 5 percent power reductions for control rod exercises, remained at or near 100 percent until January 19, 2003, when power was reduced to approximately 70 percent for a control rod sequence exchange. The unit returned to 100 percent power later that same day and remained at or near 100 percent until February 2 when power was reduced to approximately 65 percent for another rod line adjustment. The unit was returned to 100 percent power on February 3.

The unit began coasting down in power on February 6 after reaching maximum core flow with rod line limitations due to previously inserted control rods for fuel defect suppression. In mid-February, the licensee concluded that a second fuel leak existed and on February 22 reduced power to 65 percent for power suppression testing and control rod friction testing. Friction testing identified three rods in channels experiencing channel bow. The licensee fully inserted those rods as well as one rod needed to suppress the second fuel leak. With these controls in place, on February 26 the licensee ascended in power to 88 percent. The licensee noted that operation at 88 percent power resulted in cycling of the number 4 turbine control valve and reduced power to 85 percent to minimize fatigue on the control valve. On March 9 the licensee reduced power to 65 percent for a rod line change and returned to 85 percent later that day. Except for weekly rod exercises, the plant remained at 85 percent power until coastdown to a planned refueling outage began on March 25.

1. REACTOR SAFETY

Cornerstone: Initiating Events, Mitigating Systems, and Barrier Integrity

1R04 Equipment Alignment (71111.04)

.1 Complete System Walkdown

a. Inspection Scope

The inspectors performed a complete walkdown of accessible portions of the emergency closed cooling water (ECCW) system to verify system operability during the week ending January 12, 2003. The ECCW system was selected due to its risk significance. The inspectors used ECCW system valve lineup instructions (VLIs) and system drawings to accomplish the inspection.

The inspectors observed selected switch and valve positions, electrical power availability, component labeling, and general material condition. The inspectors also reviewed open system engineering issues as identified in the licensee's quarterly system health reports, open issues identified in the licensee's ECCW latent issue review report, outstanding maintenance work requests, and a sampling of licensee condition reports (CRs) to verify that problems and issues were identified, and corrected, at an

appropriate threshold. The documents used for the walkdown and issue review are listed in the attached List of Documents Reviewed.

b. Findings

No findings of significance were identified.

.2 Partial System Walkdowns

a. Inspection Scope

The inspectors used licensee VLIs and system drawings during the walkdowns. The walkdowns 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 walkdowns are listed in the attached List of Documents Reviewed. The inspectors reviewed the following four systems:

- residual heat removal (RHR) 'B' train while the RHR 'A' train was inoperable for planned maintenance during the week of January 27, 2003;
- low pressure core spray (LPCS) system following maintenance and while the RHR 'A' train was inoperable for planned maintenance during the week of January 27, 2003;
- reactor core isolation cooling (RCIC) system while the high pressure core spray (HPCS) system was inoperable for planned maintenance during the week of February 10, 2003; and
- emergency service water (ESW) system during maintenance activities on the sluice gate that required realignment of the system to discharge to the swale.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q)

a. Inspection Scope

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

- Fire Area 1CC-3a, Division 2 Switchgear Room;
- Fire Area 1CC-3b, Division 3 Switchgear Room;
- Fire Area 1CC-3c, Division 1 Switchgear Room;
- Fire Area 1CC-4a, Unit 1, Division 2 Cable Spreading Area;
- Fire Area 1CC-4e, Unit 1, Division 1 Cable Spreading Area;
- Fire Area 1AB-1a, LPCS Pump Room;
- Fire Zone 1AB-1c, RCIC Room;
- Fire Zone IB-5, Intermediate Building Elevation 682'-0";
- Fire Zone FH-3, Fuel Handling Building- El. 620'-6";

- Fire Area 1DG-1b, Division 3 Diesel Generator Room;
- Fire Area 1DG-1c, Division 1 Diesel Generator Room; and
- Heater Bay.

Emphasis was placed on the 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 looked at fire hoses, sprinklers, and portable fire extinguishers to verify that 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 verify that they were in good physical condition. The documents listed at the end of the report were used by the inspectors during the assessment of this area.

b. Findings

The inspectors identified a finding of very low safety significance (Green) for the failure of the licensee to promptly identify and correct a degraded fire barrier between the Division 3 and Division 1 switchgear rooms. The inspectors observed two holes in the south wall of the room on March 13, 2003. Although a repair tag was affixed to the wall and an hourly fire watch had been established, the inspectors reviewed the deficient condition from a problem identification and resolution perspective since the holes had been present for almost two years.

The inspectors confirmed that the licensee had previously entered the deficient condition into the corrective action program as CR 02-01691, “Impaired Fire Barrier,” dated May 31, 2002. The licensee’s apparent cause investigation identified that the holes were left in the wall on May 15, 2001, following a Division 3 battery modification which removed a bracket that supported a ground cable. Twelve months after the modification, the licensee performed an 18-month frequency fire barrier visual inspection and identified the condition. The inspectors noted, however, that the holes in the wall were readily apparent and the switchgear room was entered shiftly as part of normal operator rounds. The inspectors concluded that the identification of the deficiency was not accomplished in a timely manner and questioned licensee management about operator attentiveness to fire barrier degradation.

In response to CR 02-01691, the licensee generated two corrective actions: one to correct the deficient condition and the other to address the apparent cause. The first corrective action required initiating a work order to repair the barrier. The work order was initiated and the corrective action closed on July 11, 2002. The work order had not been completed as of March 13, 2003. The second corrective action required revising the licensee’s Interface Review Checklist to include a question regarding a modification’s impact on fire barriers. Specifically, the corrective action was intended to ensure future work orders included steps to restore fire barriers after maintenance activities that affect the barrier’s integrity. Further licensee review determined that the checklist adequately addressed impacts on fire barriers and the corrective action was

closed with no further action taken on September 13, 2002. On September 16, 2002, the licensee closed the CR.

The inspectors noted several deficiencies with respect to licensee performance. First, the issue was not identified in a timely manner. Second, the apparent cause identified by the licensee was refuted and closed by the assignee and no subsequent evaluation occurred to identify other corrective actions or causes. Therefore, the licensee has taken no action to prevent recurrence. Third, all corrective actions were closed even though no action was taken. Finally, and most significantly, the condition still had not been remediated when the inspectors reviewed the area on March 13, 2003, 22 months after the holes were left in the wall and 10 months after they were identified by the licensee. The inspectors noted that the licensee has a procedure in place to effect repairs on fire barriers and that repairs of this nature require neither exotic materials nor special plant conditions.

The inspectors determined that the finding was more than minor using guidance in Appendix B, of Inspection Manual Chapter 0612. The inspectors determined that both the failure to identify and repair degraded fire barriers in a timely manner, as well as the failure to take actions to preclude recurrence, could reasonably be viewed as a precursor to a significant event. This finding was not suitable for Significance Determination Process (SDP) analysis. However, this issue had very low safety significance (Green) because the separation of redundant trains of safe shutdown equipment was not compromised. This finding **(FIN 50-440/03-03-01)** was entered in the licensee's corrective action system as CR 03-01537.

1R06 Flood Protection (71111.06)

a. The inspectors reviewed the licensee's flood protection program with emphasis on safety related underground cables and drainage of open areas within the protected area. The inspectors reviewed the licensee's program for ensuring the integrity of underground cable insulation while taking into account industry experiences with flooding related failures of underground cable. In addition, the inspectors performed an inspection of the outside area in the protected area to verify drainage paths for surface water run-off were clear and visible drains were unobstructed.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

a. Inspection Scope

On January 16, 2003, the resident inspectors observed licensed operator performance in the plant simulator. The evaluated scenario included failure of the 'A' recirculation pump during a planned downshift, an inadvertent RCIC initiation, and a subsequent loss of high pressure injection in conjunction with a stuck open safety relief valve.

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 observed the licensee's evaluation of crew performance to verify that the training staff had observed important performance deficiencies and specified appropriate remedial actions.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12Q)

a. Inspection Scope

The inspectors reviewed the licensee's implementation of the maintenance rule requirements to verify that 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 work orders, selected surveillance test procedures, and a sample of CRs to verify that 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 verify that the criteria adequately monitored equipment performance and to verify that licensee changes to performance criteria were reflected in the licensee's probabilistic risk assessment. During this inspection period, the inspectors reviewed the following four areas:

- equipment issues and performance problems associated with the doors providing separation of essential trains for flooding, high energy line breaks, and negative and positive pressure conditions;
- fuel system;
- emergency diesel generators; and
- radiation monitoring systems.

The problem identification and resolution CRs reviewed are listed in the attached List of Documents Reviewed.

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 verify that scheduled and emergent work activities were adequately managed. In particular, the inspectors reviewed the licensee's program for conducting maintenance risk assessments to verify that 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 verify that the actions were accomplished when on-line risk was increased due to maintenance on risk-significant SSCs. The following five activities were reviewed:

- maintenance risk assessment for the week of January 6, 2003, which included planned maintenance on the motor feed pump;
- maintenance risk assessment for the planned division 1 outage during the week of January 27, 2003, which included work on LPCS, the ESW 'A' train, the RHR 'A' train, and the division 1 emergency diesel generator;
- maintenance risk assessment associated with emergent work on the motor feed pump during the week of February 3, 2003;
- maintenance risk assessment for the planned division 3 outage during the week of February 10, 2002, which included work on HPCS, the ESW 'C' train, and the division 3 emergency diesel generator; and
- revised maintenance risk assessment for emergent RCIC work performed on February 28, 2003.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Non-Routine Plant Evolutions (71111.14)

.1 Fuel Defect Suppression Testing and Control Rod Friction Testing

a. Inspection Scope

The inspectors observed and reviewed fuel defect suppression testing and control rod friction testing conducted February 22 through February 26, 2003. The inspectors observed infrequently performed test or evolution briefings, pre-shift briefings, and reactivity control briefings to verify the briefings met criteria specified in the Perry Operations Section Expectations Handbook and Perry Administrative Procedure-1121

(PAP-1121), “Conduct of Infrequently Performed Tests of Evolutions,” Rev. 1. Additionally, the inspectors observed test performance to verify that procedure use, crew communications, and coordination of activities between work groups similarly met established station expectations and standards.

b. Findings

No findings of significance were identified.

.2 Rotation of Inclined Fuel Transfer System (IFTS) Blind Flange While in Mode 1

a. Inspection Scope

The inspectors observed or reviewed activities associated with the rotation of the IFTS blind flange while in Mode 1 performed March 24 through March 29, 2003. The inspectors reviewed just-in-time training for operations department personnel to verify TS changes associated with License Amendment 123 were appropriately discussed. The inspectors observed infrequently performed test or evolution briefings to verify the briefings met criteria specified PAP-1121, “Conduct of Infrequently Performed Tests of Evolutions,” Rev. 1. The inspectors conducted a job site walkdown to review housekeeping conditions with respect to foreign material exclusion considerations, scaffolding assembly, and radiological conditions. Additionally, the inspectors reviewed the pre-staging of materials to verify actions were taken to minimize the duration of containment inoperability. The inspectors also verified the activity was appropriately terminated on March 24 when the maintenance isolation valve failed to provide adequate isolation between the upper IFTS pool and the blind flange. Finally, the inspectors observed draining of the IFTS upper pool conducted March 27 and monitored tracking of Limiting Condition for Operation requirements by control room staff when the flange was in an unbolted condition on March 28.

b. Findings

No findings of significance were identified.

.3 Motor Feed Pump Performance Verification Testing

a. Inspection Scope

The inspectors observed and reviewed activities associated with operation of the motor feed pump for performance verification testing on January 10, 2003. The inspectors observed pre-shift briefings, procedure use, crew communications, and coordination of activities between work groups at various locations.

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 TSs and Updated Safety Analysis Report (USAR) to the licensee's evaluations to verify that the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors verified that the measures were in place, would work as intended, and were properly controlled. Additionally, the inspectors verified, where appropriate, compliance with bounding limitations associated with the evaluations. The inspectors reviewed the following five items:

- an engineering assessment associated with main turbine thrust bearing wear indications;
- an operability determination associated with a Division 2 diesel generator loose rubber grommet;
- an operability determination associated with discrepancies between the temperatures used in the ECCW system pipe stress analysis and the calculated maximum component operating temperatures;
- an operability determination which evaluated the effect of failure of the ESW 'B' pump discharge vacuum breaker in the open position on ESW operability given the potential reduction in system flow; and
- an operability determination associated with the effect of postulated post-accident RCIC room temperature reaching 140^{o} F, vice the previously evaluated 137^{o} F, on safety related equipment located in the area.

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (OWAs) (71111.16)

a. Inspection Scope

The inspectors reviewed selected OWAs to determine whether there was any impact on the operator's ability to properly respond to plant transients and accidents and to implement off normal instruction and plant emergency instructions in response to an initiating event. OWAs reviewed were:

- operator actions to control reactivity with known fuel failures; and
- control room oxygen monitor spurious alarms.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (PMT) (71111.19)

a. Inspection Scope

The inspectors evaluated the following PMT activities for risk significant systems to assess 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 TSs, the USAR, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications. In addition, the inspectors reviewed CRs associated with PMT to determine if 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 six post-maintenance activities were reviewed:

- scram discharge volume (SDV) high level functional test following replacement of SDV master trip unit on January 9, 2003;
- HPCS diesel generator post-maintenance and surveillance runs conducted February 11, 2003;
- RHR/RCIC drain line isolation valve in-service leak test following valve repair on February 28, 2003;
- average power range monitor (APRM) E testing following replacement of the flow control reference card on March 3, 2003;
- rod control verification testing conducted via special maneuver sheet following installation of first new model transponder card on March 10, 2003; and
- power supply testing following replacement of the control rod drive instrumentation power supply.

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20)

a. Inspection Scope

Prior to commencement of the refueling outage (RFO9), the inspectors reviewed the licensee's shutdown safety assessment relative to planned outage activities to evaluate the adequacy of the shutdown safety assessment. The shutdown safety assessment documented a deterministic evaluation of plant risk in the areas of decay heat removal, reactor water inventory, electrical power, reactivity control, containment closure, and spent fuel pool cooling. Relative risk was determined by the licensee based on plant configuration and the redundancy of available systems and components for each day of the outage. Inspection attributes included verifying that the licensee considered

measures such as establishing compensatory actions and minimizing the duration of the activities.

Additionally, with respect to problem identification and resolution, the inspectors observed training of outage contractor supervisors conducted, in part, to address concerns identified in CR 01-01519, "Collective Significance of Poor Workmanship Seen on Jobs Performed by Contractor," dated March 19, 2001. The inspectors verified that licensee management expectations for supervisory oversight were clearly communicated; that the licensee's corrective action program process and expectations were discussed in adequate detail; and that employee rights and responsibilities regarding a safety conscious work environment were addressed. Finally, with respect to problem identification and resolution, the inspectors periodically observed new fuel receipt inspection to verify compliance with foreign material exclusion program requirements.

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 TSs, 10 CFR Part 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 reviewed 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 six specific surveillance activities assessed were:

- annulus exhaust gas treatment system flow switch calibration verifications conducted January 8, 2003;
- main steam isolation valve and logic channel functional testing conducted January 19, 2003;
- voltage to current plotting for APRM C conducted on January 30, 2003;
- LPCS pump and valve operability testing conducted January 31, 2003;
- HPCS diesel normal and backup fuel oil transfer pump testing conducted February 13, 2003; and
- lower primary containment air lock in between the seals test conducted March 19, 2003.

b. Findings

A self-revealed violation of TS 5.4 occurred on January 31, 2003, when technicians bypassed two local power range monitoring (LPRM) detectors without using the appropriate procedure. The satellite parameter display system (SPDS) overhead display flagged the associated APRM as out of calibration and the unit supervisor declared the APRM inoperable.

On January 30, 2003, the licensee performed voltage-to-current plots on the LPRMs assigned to APRM C. Based on the results of these plots, the technician concluded that two of the LPRMs should be bypassed and contacted the responsible system engineer to review the readings. The system engineer recommended that the technician perform a capacitor discharge test. The results of this test were unsatisfactory as well. The technician completed the procedure, but left the failed LPRMs in the APRM circuit, contrary to the procedure used for voltage-to-current testing. The following morning, the system engineer questioned the technician regarding the status of the LPRMs and both concluded that the LPRMs should be bypassed prior to performing voltage-to-current plots on APRM G. The technician notified the shift engineer, and the reactor operator at the controls, of the need to bypass the failed LPRMs. Without using the procedure and without further direction from the on-shift operations crew, the technician bypassed the two discrepant LPRMs. Following this action, APRM C indicated about 96 percent reactor power while the other APRMs indicated over 99 percent reactor power. When the technician went to the reactor operator to request that he place APRM G in bypass, the technician noted that the SPDS indicated channel C was out of calibration. After a brief discussion with the technician regarding the cause of the out-of-calibration reading, the unit supervisor declared APRM C inoperable and bypassed APRM C. Subsequently, the licensee restored the APRM C to operability using procedure System Operating Instruction (SOI)-C51. This event contained several examples of inadequate licensee performance; two involving failure to follow procedure; one involving failure to notify the control room of failed equipment; and one involving poor communication between the technician and the reactor operator.

The resident inspectors have noted other recent examples of instrument and control (I&C) technician performance that does not meet established standards. For example, technicians have been seen shouting across the control room during performance of procedures and failing to adequately communicate equipment status to operators. While in most cases these occurrences did not cross the threshold to be more than minor, they did indicate that this was not an isolated instance. Given the safety importance of the equipment I&C works on, continued performance at this level could result in more significant occurrences than those experienced to date.

The performance deficiency associated with this event was the failure to follow procedures for bypassing LPRMs. TS 5.4 requires implementation of procedures required by Regulatory Guide 1.33. Regulatory Guide 1.33 requires procedures for operating the nuclear instrumentation system. The licensee developed SOI-C51 for operation of the APRM system and this procedure included instructions for bypassing LPRMs. Contrary to TS 5.4 requirements, this procedure was not used to bypass the LPRMs. As a result, APRM C was not bypassed prior to bypassing the LPRMs and the operating crew was not aware of the activities in progress. The inspectors compared

this finding to those listed in Appendix E of Manual Chapter 0612 and concluded it did not fit any of the examples. The inspectors concluded it was more than minor because it can reasonably be viewed as a precursor to a significant event. In other circumstances, the technician could have caused a half scram. In this case, the technician caused one of eight APRMs to read low. The finding is of very low safety significance (Green) because no protective function occurred and operators rapidly became aware of the discrepant APRM reading.

The licensee entered this finding into the corrective action program (CR 03-00500). Because of the very low safety significance and because the issue has been entered into the licensee's corrective action program, it is being treated as a Non-Cited Violation, consistent with Section VI.A.1 of the NRC Enforcement Policy **(NCV 50-440/03-03-02).**

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed temporary modifications to risk significant systems to verify that the temporary modifications did not affect system operability or availability. Where applicable, inspectors reviewed screening and evaluation in accordance with 10 CFR 50.59. The inspectors (as applicable) verified the installed configuration coincided with the modification documents and that appropriate drawings and procedures were updated to reflect the temporary condition. The two temporary modifications reviewed were:

- temporary installation of an alternate control rod drive pump "A"; and
- bypassing power around the main turbine lower thrust bearing annunciator pressure switch directly to the lower thrust bearing trip annunciator.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System (ANS) Testing (71114.02)

a. Inspection Scope

The inspectors discussed with Emergency Preparedness (EP) staff the design, equipment, and periodic testing of the public ANS for the Perry reactor facility emergency planning zone to verify that the system was properly tested and maintained. The inspectors also reviewed procedures and records for a 24 month period ending February 2003 related to ANS testing, annual preventive maintenance, and non-scheduled maintenance. The inspectors reviewed the licensee's documentation for determining whether each model of siren installed in the emergency planning zone would perform as expected if fully activated. Records used to document and trend

component failures for each model of installed siren were also reviewed to ensure that corrective actions were taken for test failures or system anomalies.

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization (ERO) Augmentation Testing (71114.03)

a. Inspection Scope

The inspectors reviewed and discussed with EP staff the procedures which provided guidance for staffing of the current ERO rosters at Perry station. The inspectors assessed the primary and backup provisions for notification of the Perry reactor facility emergency responders. The inspectors also reviewed the licensee's assessment of its vendor's automated call-out system's processes and administrative controls. The inspectors examined the station's procedures for conducting monthly, off-hours, and unannounced ERO augmentation drills. The inspectors reviewed the results of the licensee's ERO augmentation testing to verify that the licensee maintained, tested, and critiqued its capability to staff the ERO. Specifically, the inspectors reviewed quarterly, off-hours staff augmentation test procedures, dated March 9, 2002, June 30, 2002, September 24, 2002, and November 11, 2002. The inspectors assessed the adequacy of the licensee's drill critiques, and the entry of deficiencies into their corrective action program. The inspectors reviewed these documents to assess the licensee's ability to identify repetitive problems, contributing causes, and the extent of conditions, and then implement corrective actions in order to achieve lasting results. The inspectors reviewed the CY 2001 - 2003 revisions to the station's ERO "A", "B", and "C" team rosters to verify that an adequate number of station staff were maintained for each key and support position. The inspectors also examined a representative sampling of station ERO members' training records to verify that those key and support personnel, who were listed on the current revision of the station's call-out roster, had completed all annual EP training requirements.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed a sample of Nuclear Quality Assessment staff's CY 2002 audits of the station's EP program to verify that these independent assessments complied with the requirements of 10 CFR 50.54(t). The inspectors also reviewed the EP staff's CY 2002 self-assessments and critiques to evaluate the EP staff's efforts to identify and correct weaknesses and deficiencies. The inspectors examined corrective action documents that were associated with the April 2002 biennial exercise, and several EP drills conducted between May 2002 and September 2002, in order to verify that the licensee had fulfilled its drill commitments and to evaluate the licensee's efforts

to identify, track, and resolve concerns identified during these activities. Additionally, the inspectors assessed a sample of EP procedures to verify that they were revised as indicated by relevant corrective action program records.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed the simulator control room, technical support center and the operations support center during an emergency preparedness drill conducted on February 19, 2003. 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.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES (OA)

4OA1 Performance Indicator (PI) Verification (71151)

.1 Initiating Events/Mitigating Systems/Barrier Integrity

a. Inspection Scope

The inspectors reviewed reported fourth quarter 2002 data for unplanned scrams, functional failures, and reactor coolant system leakage PIs using the definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Indicator Guideline," Revision 2. The inspectors reviewed station logs, event notification reports, licensee event reports, condition reports, and TS logs to verify the accuracy of the licensee's data submission.

b. Findings

No findings of significance were identified.

.2 Emergency Preparedness

a. Inspection Scope

The inspectors verified that the licensee had accurately reported these indicators: ANS, ERO Drill Participation, and Drill and Exercise Performance (DEP), for the EP cornerstone. Specifically, the inspectors reviewed the licensee's PI records, data reported to the NRC, and condition reports for the period March 2002 through February 2003 to identify any occurrences that were not identified by the licensee. Records of relevant Control Room Simulator training sessions, periodic ANS tests, and excerpts of drill and exercise scenario and evaluations were also reviewed.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Operations Department Human Performance

a. Inspection Scope

The inspectors reviewed the implementation of licensee corrective actions in the area of operations personnel human performance. Specifically, the inspectors reviewed the corrective actions specified by the licensee in CR 02-00501, "Evaluation of Human Performance Trend in Operations Section."

b. Findings

The inspectors determined the corrective actions to be less than completely implemented 10 months after being approved. The inspectors noted:

- Corrective action to schedule a "more focused self-assessment of POS [Plant Operations Section] human performance issues using a team with industry human performance representatives" was not completed. The inspectors observed that the action was canceled by the individual to whom the action was assigned and that the same individual approved the cancellation.

- Corrective action to "develop videos for POS personnel in order to show what good use of the various [human performance] tools looks like" was closed with one 15-minute video being developed in the 10-month period.

- Corrective action to provide training for "POS personnel who perform and approve basic cause investigations in order to improve the quality and content of these investigations" was closed after the "appropriate portion of the CR Reference Guide" was provided to the individuals. The action was created after the licensee's review, per CR 02-00501 cause analysis, appropriately identified that a significant number of human performance error CRs frequently specified "improve self-checking" as the corrective action rather than identifying and addressing organizational issues. The

inspectors determined that providing a readily available electronic reference guide did not constitute training.

An additional corrective action requiring a self-assessment of control room work load and operator distractions was completed and several recommendations were developed as a result of the effort. The recommendations were, however, still in the planning/development stage at the time of this review - 10 months after the initial CR was written.

Despite the failure of the formal corrective action program to address the issues identified in CR 02-00501, the inspectors have observed continued improvement in operations section personnel performance over the past two quarters. The inspectors concluded that the improvements were due, in large part, to increased attention and efforts of operations management personnel. The inspectors' concerns, however, were that by working outside of the formal process, the changes accounting for the improvements may not be institutionalized and therefore may only be temporary.

.2 Reactivity Management

a. Inspection Scope

The inspectors reviewed the licensee's efforts to improve reactivity management. In June 2002 the licensee initiated a condition report (CR 02-02033) to document and correct identified deficiencies in their ability to monitor, predict, and control core performance. The inspectors reviewed the cause analysis and corrective actions. In addition, the inspectors verified that the licensee's changes to facility hardware intended to improve reactivity management resulted in improved rod control and indicating system (RCIS) and control rod drive system performance.

b. Findings

The inspectors concluded that while there were significant improvements in hardware performance related to reactivity management, non-hardware improvements have been slow to develop. The inspectors noted:

- Six months after completion of the cause analysis, a key step in improvement of reactivity management has not been completed. The licensee determined a reactivity management program was needed, in part, to review plant modifications and work activities. This activity was not completed in time to support work activities associated with a refueling outage.

- Training actions have been closed with the conclusion that training was not needed. The root cause concluded that reactivity management at the site was too narrowly focused on operators. This narrow focus prevented recognition that events beyond control rod motion could effect reactivity control. Corrective actions to train senior managers and engineers on reactivity management were closed with a conclusion that training for these groups was not needed.

Several corrective actions have been completed or are in progress. For example, a cause code has been added to the corrective action program to flag reactivity management issues. More importantly, considerable progress has been made in reducing RCIS lockups and accumulator faults. In addition, the licensee has developed methods to adjust rod speed thereby reducing the number of rods requiring increased drive pressure for normal movement. However, the inspectors were concerned that numerous corrective actions have not been completed, and that some corrective actions have been closed with no action taken without re-evaluating the cause of the condition.

4OA3 Event Followup (71153)

.1 (Closed) Licensee Event Report (LER) 50-440/2002-001-01: Unplanned Automatic SCRAM During Main Turbine Mechanical Trip Weekly Testing. The inspectors reviewed the licensee's supplemental submission which corrected an abstract text error which incorrectly stated that the scram discharge volume drain valve failed to close. The licensee had correctly characterized the event in the body of the LER. Inspector response associated with this event was documented in IR 50-440/2002-006. No new information was provided in the supplement. This LER is closed.

.2 (Closed) Licensee Event Report (LER) 50-440/2002-002-00: Failure of High Pressure Core Spray Pump to Start. On October 23, 2002, the licensee attempted to start the HPCS pump to perform testing of the HPCS room cooler. Licensee investigation revealed that the failure occurred due to an improperly aligned cell switch that provided a start permissive for the pump. The inspectors identified a performance deficiency that was documented in IR 50-440/2002-008. The inspectors reviewed the LER. This LER is closed.

.3 (Closed) Licensee Event Report (LER) 50-440/2002-003-00: Inadequate Emergency Closed Cooling Water (ECCW) Surveillance Instruction Results in Loss of Safety Function. On November 14, 2002, the licensee identified that their procedure for testing ECCW valves cross-connected both trains of ECCW through non-safety related piping. The licensee determined that each use of the procedure resulted in about 15 minutes of vulnerability and that the procedure had been performed approximately 35 times. The licensee identified that cross-connecting these two systems through the non-safety piping rendered both trains inoperable. Operation with both trains of ECCW inoperable was contrary to the requirements of TS 3.7.10. This condition is considered to be a licensee-identified violation and is discussed in Section 4OA7. The inspectors reviewed the LER. This LER is closed.

.4 Failure to Identify ECCW Train Inoperability During Chemical Addition

As discussed in Section 4OA3.3 and 4OA7, the inspectors reviewed the licensee's LER and condition report that addressed the cross-connection of ECCW trains during periodic testing through non-safety piping. The inspectors reviewed the licensee's root cause evaluation and determined that the licensee's extent of condition review was inadequate in that it focused only on the In-Service Testing Program surveillance procedures. As a result, the licensee failed to recognize that during normal chemical addition a similar condition existed in that one train of ECCW was rendered inoperable due to the train being connected to non-safety piping.

Chemicals are periodically added to the ECCW system via procedure CHI-004, "System Chemical Treatment," Rev. 2. During the procedure, chemistry technicians opened chemical addition supply valves which connected a loop to the chemical addition tank through 3/4 inch non-safety piping. As the licensee had already acknowledged that during an accident, non-safety piping integrity cannot be guaranteed and that failure of the 3/4 inch non-safety chemical addition piping was sufficient to constitute "an event or condition that could have prevented fulfillment of a safety function," the inspectors concluded that an adequate extent of condition review should have identified that the same concern, system or train inoperability, existed during chemical addition.

The performance deficiency associated with this event is failure to identify a condition adverse to quality. Appendix B of 10 CFR Part 50, required, in part, that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. Contrary to these requirements, the licensee failed to identify that a single train of ECCW would be rendered inoperable for the exact same reason both trains were rendered inoperable. As a result, the licensee would not have considered an emergency core cooling system (ECCS) train inoperable during chemical addition and therefore not factored the unavailability into on-line risk assessments nor TS compliance reviews.

The inspectors determined that the violation was more than minor using guidance in Appendix B, of Inspection Manual Chapter 0612. The inspectors determined that the failure to perform an effective extent of condition review could reasonably be viewed as a precursor to a significant event and, in the case of ECCS operability, did affect the cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using the SDP, with concurrence of the regional SRA, this issue was evaluated as having very low risk significance (Green) since the single train issue is bounded by the dual train evaluation documented in Section 40A7. This violation is being treated as a NCV **(NCV 50-440/03-03-03)** consistent with Section VI.A. of the NRC Enforcement Policy. This violation was entered in the licensee's corrective action system as CR 03-01458.

4OA5 Other Activities

On March 4, 2003, the NRC issued the final significance determination and notice of violation **(NOV 50-440/02-08-02)** for the failure of the HPCS pump to start during routine surveillance testing on October 23, 2002. The issue was determined to be of low to moderate increased importance to safety (White).

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to Mr. W. Kanda, Site Vice President and other members of licensee management at the conclusion of the inspection on March 28, 2003. 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

An interim exit meeting was conducted for the Emergency Preparedness inspection with Mr. W. Kanda on February 28, 2003. A follow-up telephone discussion was held with Mr. V. Higaki, Regulatory Assurance Manager, on March 18, 2003 to further discuss inspection related topics.

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 meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as NCVs.

1. LCO 3.7.10 requires both ECCW subsystems to be operable. Contrary to this requirement, the licensee developed a procedure that used non-safety piping to cross-connect the two ECCW subsystems for periodic testing. As a result, both divisions of ECCW would have been lost in a seismic event. The licensee identified this non-compliance and reported it in LER 2002-003. The regional SRA determined that the configuration's risk significance was well below the 1E-6 threshold and of very low safety significance (Green) primarily because of the short duration that the ECCS was unavailable. This was found to be consistent with the licensee's risk determination as documented in LER 2002-03.

2. TS 5.4 requires that the procedures be developed and implemented for operation of the service water systems. Contrary to this requirement, the licensee failed to follow procedures for operation of the ESW and removed the remote shutdown ESW flow instrument from service by mispositioning the instrument's isolation valves. The licensee discovered their error later in the procedure and restored the instrument to an operable status. This resulted into an unplanned entry into LCO 3.3.3.2. Condition A required that the instrument be restored within 30 days and the licensee restored the instrument to operability in less than 24 hours. Because of the short duration of the inoperable condition and the restoration within the allowed completion time, the inspectors considered this violation to be of very low safety significance (Green).

KEY POINTS OF CONTACT

Licensee
W. Kanda, Vice President-Nuclear
D. Bauguess, Emergency Planning Unit Supervisor
D. Cleavenger, Emergency Planner
R. Coad, Radiation Protection Manager
R. Hayes, Chemistry Manager
V. Higaki, Manager, Regulatory Affairs
T. Lentz, Director, Nuclear Engineering
T. Mahon, Site Protection Section Manager
K. Ostrowski, Director, Nuclear Maintenance
D. Phillips, Manager, Design Engineering
T. Rausch, General Manager, Nuclear Power Plant Department
R. Strohl, Superintendent, Plant Operations

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-440/03-03-01	FIN	Failure to Promptly Identify and Correct Degraded Fire Barrier
50-440/03-03-02	NCV	Failure to Follow Procedures When Bypassing LPRMs
50-440/03-03-03	NCV	Inadequate Extent of Condition Review For ECCW Inoperability Due to Safety/Non-Safety Piping Interface
50-440/02-08-02	NOV	High Pressure Core Spray Pump Failure to Start

Closed

50-440/02-08-02	AV	High Pressure Core Spray Pump Failure to Start
50-440/2002-001-01	LER	Unplanned Automatic SCRAM During Main Turbine Mechanical Trip Weekly Testing
50-440/2002-002-00	LER	Failure of High Pressure Core Spray Pump to Start
50-440/2002-003-00	LER	Inadequate Emergency Closed Cooling Water Surveillance Instruction Results in Loss of Safety Function
50-440/03-03-01	FIN	Failure to Promptly Identify and Correct Degraded Fire Barrier
50-440/03-03-02	NCV	Failure to Follow Procedures When Bypassing LPRMs
50-440/03-03-03	NCV	Inadequate Extent of Condition Review For ECCW Inoperability Due to Safety/Non-Safety Piping Interface

LIST OF DOCUMENTS REVIEWED

1R04 Equipment Alignment

Emergency Closed Cooling Water System Latent Issues Report; dated December 14, 2001

Perry Nuclear Engineering Department System Health Report, Second Quarter 2002; undated

Perry Nuclear Engineering Department System Health Report, Third Quarter 2002; undated

CR 01-4067; Latent Issues Review - Flow Balance Inconsistences; dated November 27, 2001

CR 01-4257; Latent Issues Review Recommendations; dated December 13, 2001

SOI-M28; Emergency Closed Cooling Pump Area Cooling System

CR 02-3180; Emergency Closed Cooling System Calculation Heat Loan Discrepancy; dated September 4, 2002

CR 02-01125; Non-Conservative Reporting of Safety System Unavailability for January 2002; dated April 16, 2002

CR 01-3675; Latent Issues for ECC- Calculations Deficiencies Associated with LOOP/LOCA; dated October 16, 2001

DWG 302-0621-00000; Emergency Closed Cooling System; Rev. HH

DWG 302-0622-00000; Emergency Closed Cooling System; Rev. J

VLI-E12; Residual Heat Removal; Rev. 5

SOI-E12; Residual Heat Removal; Rev. 11

DWG 302-0643-00000; Residual Heat Removal System; Rev. RR

DWG 302-0641-00000; Residual Heat Removal System; Rev. WW

DWG 302-0642-00000; Residual Heat Removal System; Rev CC

VLI-E21; Low Pressure Core Spray; Rev. 4

SOI-E21; Low Pressure Core Spray System; Rev. 8

DWG 302-0705-00000; Low Pressure Core Spray; Rev. Z

SOI-E5; Reactor Core Isolation Cooling System; Rev. 9

VLI-E51; Reactor Core Isolation Cooling System; Rev. 3

DWG 302-0631-00000; Reactor Core Isolation Cooling System; Rev. Z

System Health Report; Fourth Quarter 2002

DWG 302-0791-00000; Emergency Service Water System; Rev. KK

DWG 302-0792-00000; Emergency Service Water System; Rev. GG

SOI-P45/49; Emergency Service Water and Screen Wash Systems; Rev. 5

VLI-P45; Emergency Service Water; Rev. 4

CR 01-2452; Discharge from ESW A Swale Piping during Sluice Gate Testing; dated June 14, 2001

1R05 Fire Protection

USAR Section 9A.4.2.1.1; Fire Area 1AB-1a

USAR Section 9A.4.2.1.3; Fire Zone 1AB-1c

USAR Section 9A.4.3.5; Fire Zone IB-5

USAR Section 9A.4.4.3.1.1; Fire Area 1CC-3a

USAR Section 9A.4.4.3.1.2; Fire Area 1CC-3b

USAR Section 9A.4.4.3.1.3; Fire Area 1CC-3c

USAR Section 9A.4.4.4.1.1; Fire Area 1CC-4a

USAR Section 9A.4.4.4.1.5; Fire Area 1CC-4e

USAR Section 9A.4.5.1.2; Fire Area 1DG-1b

USAR Section 9A.5.5.1.3; Fire Area 1DG-1c

USAR Section 9A.4.7.4; Fire Zone FH-3

USAR Section 9A.4.12; Heater Bay

Drawing E-023-002; Fire Protection Evaluation - Unit 1 Auxiliary and Reactor Building Plan, El. 574’-10"; dated September 2001

Drawing E-023-010; Fire Protection Evaluation - Unit 1 Auxiliary and Reactor Buildings Plan - El. 620’-6"; dated September 2001

Drawing E-023-011; Fire Protection Evaluation - Units 1 and 2 Control Complex and Diesel Generator Building Plan - El. 620'-6"; dated September 2001

Drawing E-023-012; Fire Protection Evaluation - Units 1 and 2 Intermediate and Fuel Handling Buildings Plan - El. 620'-6"; dated September 2001

Drawing E-023-015; Fire Protection Evaluation - Control Complex and Diesel Generator Roof Plan, El. 638'-6" and 646'-6"; dated September 2001

Drawing E-023-024; Fire Protection Evaluation - Units 1 and 2 Intermediate and Fuel Handling Buildings Plan - El. 682'-6"; dated September 2001

CR 02-01691; Impaired Fire Barrier; dated May 31, 2002

1R06 Flood Protection

GEI-0001; Performing Insulation Resistance Checks; Rev. 4

Drawing D-216-0011-00000; Manholes and Underground Duct Runs; Rev. X

EMPAC database

Perry Plant Maintenance Information System

QAPM; Quality Assurance Program Manual; Rev. 3

USAR Section 1.2.2.6; Electrical Systems and Instrumentation and Control

USAR Section 1.8; NRC Regulatory Guide Assessment

USAR Section 8.3; Onsite Power Systems

1R11 Licensed Operator Requalification

Simulator Scenario Guide OTC-3058-2003-01C; dated December 18, 2002

1R12 Maintenance Effectiveness

USAR Section 3.6; Protection Against Dynamic Effects Associated With the Postulated Rupture of Piping

USAR Section 9.3.3; Equipment and Floor Drainage System

CR 01-00946; Maintenance Rule Evaluation on Radiation Monitor; dated February 28, 2001

CR 01-02983; 1D19-K100 (D.W. & R.B. High Range Monitor) Periodically Starting; dated August 5, 2002

CR 02-00413; Turbine Building Basement Flood Control Switch Failed to Change State; dated February 9, 2002

CR 02-00285; The Drywell Radiation Monitor's Particulate Channel Received Two Spurious Alarms; dated January 24, 2002

CR 02-00287; Radiation Monitor - Potential for Repeat Maintenance; dated January 29, 2002

CR 02-01225; Control Room Atmosphere Rad Monitor; dated April 23, 2002

CR 02-01411; 1D19K100 DW/CTN Received an Equipment Failure Light and It Would Not Reset; dated May 7, 2002

CR 02-01731; CC-603 Fire Door; dated June 3, 2002

CR 02-01849; Inoperable Radiation Monitor Requires Maintenance Rule Evaluation; dated June 11, 2002

CR 02-01859; Fire Door OG202 Will Not Close Properly; dated June 11, 2002

CR 02-01967; 3 Relays Failed In Same Manner At Same Time; dated June 20, 2002

CR 02-02465; Unplanned Fire Impairment For Fire Door CC 509; dated July 25, 2002

CR 02-02786; Main Steam Line Radiation Monitor 'D' Loss of Power; dated August 17, 2002

CR 02-02976; Inoperable Radiation Monitor Requires Maintenance Rule; dated August 26, 2002

CR 02-03082; Unplanned Fire Impairment - Fire Door AX 302; dated September 4, 2002

CR 02-03401; MSL Rad Monitor Channel C Reliability Question; dated September 23, 2002

CR 02-03598; Fire/Tornado Door CC-323 Continues to Be Problematic; dated October 2, 2002

CR 02-04395; Unplanned Fire Impairment on Tornado Barrier Door DG-112; dated November 19, 2002

CR 02-04400; Fire Door Propped Open; dated November 20, 2002

CR 02-04443; Unplanned Fire Impairment for Door HB-404; dated November 21, 2002

CR 02-04452; Unplanned Fire Impairment for Door HB-302; dated November 22, 2002

CR 02-04461; Unplanned Fire Impairment for Fire Door IB-201; dated November 24, 2002

System Health Report, fourth quarter 2002

Selected log entries February 2002-February 2003

PYBP-PES-0001; Maintenance Rule Reference Guide; Rev. 6

PAP-1125; Monitoring the Effectiveness of Maintenance Program Plan; Rev. 6

CR 02-04355; Div 2 DG Experienced Load Instability During the First Maintenance Run; dated November 14, 2002

Monitor Database entries related to Diesel Generators, February 20, 2003

Maintenance Rule Database entries for Diesel Generators, February 22, 2002

CR 00-3582; Division 2 Diesel Generator Load Swings; November 17, 2000

CR 02-03376; Post Scram 1-02-1 Evaluation; September 22, 2002

CR 02-03361; Division 2, Diesel Load Swings; September 20, 2002

1R13 Maintenance Risk Assessment and Emergent Work Control

Probabilistic Risk Assessment for the Week of January 6, 2003

PYBP-POS-2-2; Protected Equipment Postings; dated August 29, 2002

SDM R10; Plant Electrical Systems; Rev. 9

Plant Work Implementation Schedule; Week 11, period 8

Probabilistic Risk Assessment for the Week of January 27, 2003

Probabilistic Risk Assessment for the Week of February 24, 2002; revision dated February 28, 2003

Plant Work Implementation Schedule; Week 2, period 9

Plant Work Implementation Schedule; Week 6, period 9

WO 02-012128-000; MTR. Driven Feed Pump Discharge Low Flow Control Valve; dated January 7, 2003

1R14 Personnel Performance During Non-Routine Plant Evolutions

SOI-N27; Feedwater System; Rev. 13

PAP-1121; Conduct of Infrequently Performed Tests of Evolutions; Rev. 1

PYRM-POS-0001; Perry Operations Section Expectations Handbook; Rev. 4

WO 03-003167-000; Drain/Refill Upper IFTS Pool to the Dryer Pool to Support Work Order 02-004537-000; dated March 25, 2003

WO 02-004537-000; Rotate the IFTS Blind Flange as Required to Support Implementation of DCP 01-5015; dated December 15, 2002

TXI-0352; IFTS Operation and Alignment For DCP 01-5015; Rev. 2

1R15 Operability Evaluations

CR 02-04898; Main Turbine Thrust Bearing Wear Detector Unexpected Alarms; dated December 29, 2002

Satellite Display System for Thrust Bearing Temperatures; November 1, 2002-December 3, 2002

CR 03-00347; Div. 2 DG Wire to Brushes Losing Its Insulation; dated February 3, 2003

CR 03-00550; ECCW Operating Temps Are Greater Than the Temp Used in the Piping Analysis; dated February 4, 2003

CR 03-00611; ESW [B] Discharge Vacuum Breaker Failed to Close Following Pump Start; dated February 6, 2003

Calculation P45-075; Minimum Branch Flow Rates for P45 Surveillance Acceptance Criteria; Rev. 0

Enercon Services Report No. CE330-01; Required ESW Flow Rates to Heat Exchangers for ESW Pump Inlet Temperatures Above and Below 85F; Rev. 0

CR 03-00832

Drawing B-022-0003-00000; Environmental Conditions for Auxiliary Building; Rev.G

1R16 Operator Workarounds

Operations Standing Instruction; dated February 6, 2003

Second Fuel Defect Response Options; undated

1R19 Post-Maintenance Testing

WO 02-006664-000; Master Trip Unit; Scram Discharge Volume Level-High, dated January 9, 2003

ICI-B21-1, Rosemount Master Trip Unit (510DU) and (710DU); Rev. 4

SVI-C11-T0044D; SDV Water Level High Channel D functional for 1C11-N601D; Rev. 3

TS 3.3.1.1; Reactor Protection System Instrumentation

WO 02-009920-000; Change Oil - Lube Div-3 Fuel Oil Xfer Pump (EQ); dated December 31, 2002

WO 02-009995-000; Remove/Test/Replace Relief Vlv - Calcium Buildup; dated January 9, 2003

WO 03-002437-000; RHR/RCIC Drain Line Iso Valve; dated February 27, 2003

WO 02-010975-000; APRM Channel E, dated March 3, 2003

SVI-C51-T0027-E; APRM E Channel Functional for 1C51-K605E; dated March 3, 2003

ICI-C-C51-11; APRM Channel Calibration/Adjustment; Rev. 1

CR 01-2524; APRM Flow Control Trip Reference Card; dated June 21, 2001

WO 02-011619-000; Replace C11 Transponder Cards; dated February 17, 2003

WO 03-003059-000; Rework/Replace Power Supply 1C11K0600; dated March 21, 2003

CR 03-01428; Evaluate Implications of C11 Parameters Post K0600 Power Supply Replacement; dated March 22, 2003

1R20 Refueling and Outage Activities

NOP-OP-1005; Shutdown Safety; Rev. 2

Perry Nuclear Plant - Refuel Nine Level One Schedule; dated March 12, 2003

CR 01-01519; Collective Significance of Poor Workmanship Seen on Jobs Performed By Contractor; dated March 19, 2001

NOP-WM-4001; Foreign Material Exclusion; Rev. 0

PYRM-POS-0001; Perry Operations Section Expectations Handbook; Rev. 4

Perry Maintenance Section Expectations Handbook; Rev. 1

1R22 Surveillance Testing

PTI-M15-P0001; AEGTS Flow Switch Calibration for 1M15-N070A and 1M15-N070B; Rev. 1

SOI-M15; Annulus Exhaust Gas Treatment System; Rev. 5

SVI-C71-T0039; MSIV Closure Channel Functional; Rev. 5

TS 3.3.1.1; Reactor Protection System (RPS) Instrumentation

SVI-E21-T2001; Low Pressure Core Spray Pump and Valve Operability Test; Rev. 10

IMI-E3-17; Local Power Range Monitor Detector; dated January 30, 2003

Voltage to Current Plots for LPRMs assigned to APRM "C"; dated January 30, 2003

SIL No. 50; LPRM Spiking; dated October 23, 1989

SOI-C51; Average Power Range Monitoring System; Rev. 3

CR 03-00500; LPRM's Bypassed in APRM C; dated January 31, 2003

SVI-R45-T2003; Division 3 Diesel Generator Fuel Oil Transfer Pump and Valve Starting Air

Check Valve Operability Test; Rev. 5

USAR Section 9.5.9.1; HPCS Diesel Generator Fuel Oil Storage and Transfer System

TAI-1120-8; Performance Based Testing; Rev. 0

PAP-1120; Leak Testing Program; Rev. 3

FTI-F0031; Volumetrics Leak Rate Monitor Testing Instruction; Rev. 1

SVI-P53-T6305; Lower Primary Containment Air Lock (Penetration P305), In Between the Seals Test; Rev. 4

1R23 Temporary Modifications

CR 02-04796; RFA to Evaluate CRD Pump Casing Erosion; dated December 18, 2002

WO 02-004732-000; CRDH Pump 'A'; dated December 23, 2002

File 49G; Control Rod Drive Water Pump; MRN 8

PY-CYC-009; Clearance for CRD Pump A

PLCO 02-0001113; Potential Limiting Condition for Operation

Temporary Modification Technical Evaluation TM 03-003; dated February 2, 2003

10 CFR 50.59 Screen associated with TM 03-003; dated February 2, 2003

10 CFR 50.59 Evaluation associated with TM 03-003; dated February 2, 2003

CR 03-00666; Level of Detail in 50.59 Evaluation For Turbine Trip Temporary Modification; dated February 7, 2003

1EP2 Alert and Notification System (ANS) Testing

CR 01-3208; Emergency Planning zone siren verification system upgrades; dated August 28, 2001

CR 02-01606; Prompt Alert siren system siren activation failures; dated May 22, 2002

CR 02-02270; Incorrect Prompt Alert siren system activation sent; dated July 10, 2002

CR 02-02316; Prompt Alert siren system test failures; dated July 11, 2002

ITS-CSU-96-00029; Prompt Alert Siren System memorandum; dated June 21, 1996

NEI-0951; Prompt Alert System; Revision 3

Evacuation time estimates for the Perry Nuclear Plant Plume Exposure Pathway Emergency Planning Zone; dated January 2003

FirstEnergy Nuclear Operating Company, Perry Nuclear Power Plant, Siren Upgrade Project Plan; Revision 1

Perry siren coverage contour maps, with sound level verification/coverage testing results

Prompt Alert siren system activation history, data from 1987-2002

Standard Operating Procedure for an emergency at the Perry Nuclear power Plant, Lake, Geauga, and Ashtabula Counties, Federal Signal System, Siren Activation; dated November 2002

Summary of siren L17 quiet test; dated February 26, 2003

1EP3 Emergency Response Organization (ERO) Augmentation Testing

CR 02-02011; Force outage staff “call-out” discrepancies; dated June 3, 2002

CR -02-02825; ERO pager test for team “B” not completed within 15 minutes; dated August 19, 2002

CR 02-02935; Reactor engineer failure to respond to Emergency Plan page test; dated August 26, 2002

CR 02-03069; “Telezapper”, A challenge to notification and information during emergency events; dated September 4, 2002

CR 02-03218; Challenges to E-Plan reporting times; dated September 12, 2002

CR 02-03318; ERO training drill “Observer” protocol; dated September 12, 2002

CR-03-00957; Create a new back-up ERO “call‘-out” system replacing OPX telecommunication system; dated February 27, 2003

EPI-A6; Perry Operations Manual, Emergency Plan Implementing Instruction, Technical Support Center activation; Revision 11

EPI-A7; Perry Operations Manual, Emergency Plan Implementing Instruction, Operation Support Center activation; Revision 11

EPI-A8; Perry Operations Manual, Emergency Plan Implementing Instruction, Emergency Operations Facility activation; Revision 9

EPI-B3; Perry Operations Manual, Emergency Plan Implementing Instruction, Radiological surveys for emergencies; Revision 8

Emergency Plan Drill/Exercise attendance roster; dated November 19, 2002

EPU -20; Emergency Planning Unit Desk guide, Drill/Exercise Preparations; Revision 0

EPU-21; Emergency Planning Unit Desk guide, Emergency Planning Pre-drill Player/Controller Briefs; Revision 1

Integrated on-call listings report for EP plan; dated November 11, 2002

PTI-GEN-P0003; Quarterly testing of the emergency page system; Revision 5

Perry emergency telephone directory, ERO, Radiation Monitoring Team members listings; Revision 2002-4

PTI-GEN-P0003; Quarterly testing of the emergency page system; Revision 5; Completed drill packages for unannounced pager test; dated March 9, June 30, September 24, and November 14, 2002

SA Report 161RPU99; Emergency Response Organization Off-Hours, Unannounced Drill; dated November 30, 1999

SA Report 530PTS2002; 2002 Emergency Response Organization, ERO Team “B” training Drill; dated May, 2002

SA Report 531PTS2002; 2002 Emergency Response Organization, ERO Team “A” training drill; dated September, 2002

TMP-2302; Emergency Plan training program; Revision 5

W.O. #02-01241-000; Repetitive Task Work Order, Quarterly Update of Emergency Response Telephone Directory; Revision 0

W.O. #PTI-GEN-P003; Focused pre-Job briefing card for off-hours (4:58 am) unannounced pager test; dated November 13, 2002

476PTS2002; PTS Binning & Trending Report, Emergency Planning Unit; dated November 11, 2002

Emergency Response Organization (ERO) team member information verification (telephone and estimated time of arrival) form, 1st Quarter, 2003 information for typical plant ERO team member

EPL-0823; Emergency Response Organization (ERO) Introduction

2003 ERO Team "C" Drill, Players Briefing slide presentation notes

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies

CR 02-02153; Event description for initial notification error; dated May 7, 2002

CR 02-02429; Incorrect classification during licensed operator re-qualification; dated July 23, 2002

CR 02-04231; Missed EP classification during operator re-qualification; dated November 6, 2002

CR 02-04845; Improper completion of Initial Notification form during training; dated December 19, 2002

CR 03-00283; EP Drill and Exercise performance indicator declining trend; dated January 21. 2003

EPER-1993; 1993 Emergency Preparedness Exercise Report; Revision 0

Memorandum from J. D. Anderson to M. D. Lyster and R. A. Stratman, Critique of December 22, 1991 Alert; Revision 0

Memorandum from J. D. Anderson to R. A. Stratman, Personnel on-shift or responding to the December 22, 1991 Alert; dated January 9, 1992

Perry Nuclear Power Plant, Perry Operation Manual, Emergency Plan; Revision 17

NOP-LP-2001; Condition Report Process; Revision 3

SA Report 520PTS2002; Perry Plant 2002 Emergency Preparedness evaluated exercise; dated April 2002

1EP6 Drill Evaluation

Perry Nuclear Power Plant 2003 ERO Team "C" Drill

4OA1 Performance Indicator (PI) Verification

Plant Narrative Logs; January 1, 2002 through December 31, 2002

Technical Specifications Rounds data sheets; October 1, 2002 through December 31, 2002

EPIL-15; Emergency Preparedness Performance Indicators; Revision 5

Perry Nuclear Power Plant, Desktop Guideline, NRC Performance Indicators; Revision 3

Desktop Guide for Emergency Planning Performance Indicators; dated August 8, 2002

ANS Quarterly Operability Results; 2nd Quarter 2002 - 4th Quarter 2002

ANS Monthly Participation Results; dated January 2003

ERO Quarterly Participation Results; 2nd Quarter 2002 - 4th Quarter 2002

ERO Monthly Participation Results; dated January 2003

DEP Quarterly Performance Results; 2nd Quarter 2002 - 4th Quarter 2002

DEP Monthly Participation Results; dated January 2003

4OA2 Identification and Resolution of Problems

CR 02-00501; Evaluation of Human Performance Trend in Operations Section; dated February 17, 2002

CR 02-01793; Missed Communication Led to Incorrect Performance of Work Orders; dated June 7, 2002

CR 02-03661; Misoperation During Transient Response Leads to Isolation of Off Gas Flow; dated October 5, 2002

CR 03-01168, 1M14F602 Found Open, dated March 10, 2002

SVI-M14-T9314, Type C Local Leak Rate Test of 1M14 Penetration V314, Rev. 8

Plant Operations Section Self-Assessment Report; POS Human Performance/Work Activities and Workload Control; 444-POS-2002; dated December 19, 2002

PYRM-POS-0001; Perry Operations Section Expectations Handbook; Rev. 4

CR 02-02033, INPO 2002 AFI EN.5-1, dated June 25, 2002

CR 02-02510, Reactivity Management Considerations Associated with Recirc FCV Lockup dated July 30, 2002

CR 02-01174, Reactivity Impact of Drain Valve 1N22F0330, dated April 16, 2002

TXI-0355, Determining CRD Driveline Interference Condition, Rev. 3

LIST OF ACRONYMS USED

°F	degrees Fahrenheit
ANS	Alert and Notification System
APRM	Average Power Range Monitor
CFR	Code of Federal Regulations
CR	Condition Report
CY	Calendar Year
DEP	Drill and Exercise Performance
ECCS	Emergency Core Cooling Systems
ECCW	Emergency Core Cooling Water
EP	Emergency Preparedness
ERO	Emergency Response Organization
ESW	Emergency Service Water
FENOC	FirstEnergy Nuclear Operating Company
FIN	Finding
HPCS	High Pressure Core Spray
I&C	Instrument and Control
IFTS	Inclined Fuel Transfer System
LER	Licensee Event Report
LCO	Limiting Condition for Operation
LPCS	Low Pressure Core Spray
LPRM	Local Power Range Monitoring
NCV	Non-Cited Violation
NOV	Notice of Violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
OA	Other Activities
OWA	Operator Workaround
PAP	Perry Administrative Procedure
PI	Performance Indicator
PMT	Post-Maintenance Testing
POS	Plant Operations Section
RCIC	Reactor Core Isolation Cooling
RFO9	Refueling Outage 9
RHR	Residual Heat Removal
SDP	Significance Determination Process
SDV	Scram Discharge Volume
SOI	System Operating Instruction
SPDS	Satellite Parameter Display System
SSC	Structure, System & Component
SVI	Surveillance Instruction
TS	Technical Specification
USAR	Updated Safety Analysis Report
VLI	Valve Lineup Instruction