

January 28, 2003

EA 03-007

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

SUBJECT: PERRY NUCLEAR POWER PLANT
NRC INTEGRATED INSPECTION REPORT 50-440/02-08
PRELIMINARY WHITE FINDING

Dear Mr. Kanda:

On December 28, 2002, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Perry Nuclear Power Plant. The enclosed report documents the inspection findings which were discussed on January 9, 2003, with Mr. T. Rausch 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.

This report discusses a finding that appears to have a low to moderate safety significance. As described in Section 4OA3.3 of this report, this finding relates to failure of your high pressure core spray system to start during routine surveillance testing on October 23, 2002. This finding was assessed using the NRC Phase 3 Significance Determination Process and was preliminarily determined to be White, i.e., a finding with some increased importance to safety, which may require additional NRC inspection.

This finding is also an apparent violation of NRC requirements and is being considered for escalated enforcement action in accordance with the "General Statement of Policy and Procedure for NRC Enforcement Actions" (Enforcement Policy), NUREG-1600. The current Enforcement Policy is included on the NRC's website at <http://www.nrc.gov>.

The apparent violation involves the failure to follow procedure GEI-0135, "ABB Power Circuit Breakers 5 KV Types 5HK250 and 5HK350 Maintenance," for breaker installation and inspection. Specifically, the inspection procedure required confirmation that open contacts are in the flat, horizontal position. While the procedure allows for deviation from the flat horizontal alignment, clear make/break of the contacts must be observed. The physical configuration of the cell switch prevents observation of contact make/break; therefore, the open contacts must be in the flat, horizontal position to comply with the procedure. In the as found condition, the cell switch was significantly out of the flat horizontal condition.

We believe that sufficient information was considered to make a preliminary significance determination. However, before we make a final decision on this matter, we are providing you an opportunity to present to the NRC your perspectives on the facts and assumptions used by the NRC to arrive at the finding and its significance at a Regulatory Conference or by a written submittal. If you choose to request a Regulatory Conference, it should be held within 30 days of the receipt of this letter and we encourage you to submit supporting documentation at least one week prior to the conference in an effort to make the conference more efficient and effective. If a Regulatory Conference is held, it will be open for public observation. If you decide to submit only a written response, such submittal should be sent to the NRC within 30 days of the receipt of this letter.

Please contact Mark A. Ring at 630-829-9703 within 10 business days of your receipt of this letter to notify the NRC of your intentions. If we have not heard from you within 10 days, we will continue with our significance determination and enforcement decision and you will be advised by separate correspondence of the results of our deliberations on this matter.

Since the NRC has not made a final determination in this matter, no Notice of Violation is being issued for this inspection finding at this time. In addition, please be advised that the number and characterization of apparent violations described in the enclosed inspection report may change as a result of further NRC review.

During the inspection period, the inspectors also identified one finding of very low safety significance (Green). The finding was determined to be a violation of NRC requirements. However, because of its very low safety significance and because it has been entered into your corrective action program, the NRC is treating this finding as a Non-Cited Violation in accordance with Section VI.A.1 of the NRC's Enforcement Policy.

If you contest the subject or severity of a Non-Cited Violation, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with a copy to the Regional Administrator, U.S. Nuclear Regulatory Commission - Region III, 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 nuclear power plants 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 nuclear power plants.

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/

Geoffrey E. Grant, Director
Division of Reactor Projects

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

Enclosure: Inspection Report 50-440/02-08

cc w/encl: B. Saunders, President - FENOC
K. Ostrowski, Director, Nuclear Maintenance Department
V. Higaki, Manager, Regulatory Affairs
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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No: 50-440

License No: NPF-58

Report No: 50-440/02-08

Licensee: FirstEnergy Nuclear Operating Company (FENOC)

Facility: Perry Nuclear Power Plant, Unit 1

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

Dates: October 1, 2002, through December 28, 2002

Inspectors: Ray Powell, Senior Resident Inspector
John Ellegood, Resident Inspector
John House, Senior Radiation Specialist
Patricia Lougheed, Regional Inspector
Gerard O'Dwyer, Regional Inspector
Charles Phillips, Senior Operations Engineer
Darrell Schrum, Reactor Inspector
Phillip Young, Examiner
Paul Pelke, Reactor Engineer

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

SUMMARY OF FINDINGS

IR 05000440-02-08; First Energy Nuclear Operating Company; on 10/01-12/28/2002; Perry Nuclear Power Plant. Post-Maintenance Testing, Event Follow-up.

This report covers a 3-month period of baseline resident inspections; a baseline heatsink inspection; a baseline radiation protection inspection; an inspection of the Licensed Operator Requalification Program; and a baseline maintenance rule implementation inspection. The inspections were conducted by resident and regional specialist inspectors. The inspections identified one preliminarily White finding which involved an Apparent Violation (AV) and one Green finding which involved a Non-Cited Violation (NCV). 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. Inspection Findings

Cornerstone: Mitigating Systems

To Be Determined. An apparent self-revealed violation of Technical Specification (TS) 5.4 occurred when the High Pressure Core Spray (HPCS) pump failed to start during a surveillance test of the HPCS room cooler. Troubleshooting by the licensee revealed that contacts in the breaker enclosure that provide a close permissive signal were misaligned and prevented starting of the HPCS pump. Since the last breaker replacement, the licensee had performed one post-maintenance test and two inspections of the circuit breaker that would have detected the misalignment of contacts had the procedure been properly followed. The finding is identified as **Apparent Violation (AV) 50-440/02-08-02**. The NRC assessed this finding through phase 3 of the SDP and made a preliminary determination that it is an issue with some increased importance to safety. (Section 4OA3.3)

Cornerstone: Barrier Integrity

Green. The inspectors identified a violation of TS Surveillance Requirement (SR) 3.6.1.9.1 in that the licensee failed to perform TS required surveillance testing and appropriate post-maintenance testing (PMT) following packing adjustment of a main steam shutoff valve. Surveillance Requirement R 3.6.1.9.1 specified that the licensee verify isolation times of main steam shutoff valves at a frequency in accordance with the Inservice Testing Program. The Inservice Testing Program specifically stated that following adjustment of stem packing, stroke time testing will be performed. Contrary to this requirement, no stroke time testing was performed on the valve. The inspectors also noted that the condition was further aggravated by the licensee's use of an operability determination to declare the valve operable once the missed PMT was initially identified. The licensee failed to recognize the TS compliance aspect until prompted, repeatedly, by the inspectors.

The inspectors determined that the finding was more than minor because the failure to perform PMT on a safety related component could reasonably be viewed as a precursor to a significant event. The finding was of very low risk significance because, although the barrier integrity cornerstone was affected in that containment systems capability was not demonstrated through TS required surveillance testing, subsequent testing demonstrated that the system would have performed its intended safety function. (Section 1R19)

B. Licensee-Identified Violations

A violation of very low significance which was identified by the licensee has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation is listed in Section 4OA7 of this report.

Report Details

Summary of Plant Status

The inspection period began with Unit 1 in mode 4 following a September 22, 2002, scram which occurred during performance of routine turbine overspeed testing. Following completion of forced outage maintenance activities, the unit reached criticality on October 3 and synchronized to the grid on October 5. The unit reached approximately 94 percent power on October 7, with maximum core flow. Power was reduced to approximately 60 percent on October 8 to perform a rod line adjustment. Following the rod line adjustment, 100 percent power was achieved on October 9. The unit remained at or near 100 percent power until October 12 when power was reduced to approximately 75 percent to perform an additional rod line adjustment. The unit was returned to 100 percent power later that same day.

The unit slowly decreased power from October 15 through October 27 due to maximum core flow limitations. On October 27, power was reduced to approximately 68 percent for a rod line adjustment and testing of a main steam stop valve. The unit remained at or near 100 percent power until December 1, when power was reduced to approximately 70 percent for a planned rod line adjustment. With the exception of planned down powers to 90 or 95 percent for weekly rod exercises, the unit remained at 100 percent power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather (71111.01)

a. Inspection Scope

During the weeks of October 28 and November 4, 2002, the inspectors reviewed the licensee's cold weather readiness to verify that cold weather protection features such as heat tracing and space heaters were monitored and functional; that plant features and procedures for cold weather operations were appropriate; and that operator actions specified in the licensee's cold weather preparation procedures verified the readiness of essential systems. Specifically, the inspectors:

- conducted walkdowns of various plant structures and systems to check for maintenance or other apparent deficiencies that could affect system operations during cold weather conditions;
- reviewed heat trace system calibration data;
- reviewed winter preparation repetitive task status;
- reviewed heat trace setpoints and area thermostat settings;
- reviewed ice melt procedures; and
- discussed operational experience with licensee operations and training staffs.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

The inspectors used licensee valve lineup instructions (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 systems reviewed were:

- Control Room Heating, Ventilation, and Air Conditioning Train "B" while Train "A" was inoperable for planned maintenance during the week of October 21, 2002;
- Division 1 Diesel Generator while the Division 2 Diesel Generator was inoperable due to planned maintenance during the week of November 11, 2002;
- Reactor Core Isolation Cooling (RCIC) system while the High Pressure Core Spray (HPCS) system was inoperable due to planned Division 3 Diesel Generator maintenance during the week of November 18, 2002;
- HPCS system while the RCIC system was inoperable due to planned maintenance during the week of December 2, 2002; and
- Emergency Closed Cooling Water system during a planned Division 2 Outage conducted the week of December 9, 2002.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q)

.1 Walk-down of Selected Fire Zones

a. Inspection Scope

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

- Fire Zone IB-2, Intermediate Building Elevation 599'-0";
- Fire Zone IB-3, Intermediate Building Elevation 620'-6";
- Fire Zone IB-4, Intermediate Building Elevation 654'-6" and 665'-0";
- Fire Zone IB-5, Intermediate Building Elevation 682'-0";
- Fire Area 1DG-1B, Div 3 Diesel Generator;
- Fire Area 1CC-3B, Div 3 Switchgear;
- Fire Area 1CC-3C, Remote Shutdown Panel;
- Fire Area 1AB-1g, Common Corridor for Floor 1 of the Auxiliary Building;

- Fire Area 1AB-3b, Auxiliary Building, 620'-6" (West);
- Fire Area CC-2, Control Complex Elevation 599'-0"; and
- Fire Area CC-4, Control Complex Elevation 638'-6".

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

No findings of significance were identified.

.2 Observation of Unannounced Fire Drill

a. Inspection Scope

The inspectors observed an unannounced drill concerning a fire in an electrical cubicle on November 26, 2002. The drill was observed to evaluate the readiness of licensee personnel to fight fires. The inspectors considered licensee performance in donning protective clothing/turnout gear and self-contained breathing apparatus, deploying firefighting equipment and fire hoses to the scene of the fire, entering the fire area in a deliberate and controlled manner, maintaining clear and concise communications, checking for fire victims and propagation of fire and smoke into other plant areas, smoke removal operations, and the use of pre-planned fire fighting strategies in evaluating the effectiveness of the fire fighting brigade. In addition, the inspectors attended the post-drill debrief to evaluate the licensee's ability to self-critique fire fighting performance and make recommendations for future improvement.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

.1 Biennial Review of Heat Sink Performance

a. Inspection Scope

The inspector reviewed documents associated with testing, inspection, cleaning and performance trending of heat exchangers primarily focusing on the Division 1 (Loop A)

Emergency Closed Cooling Water (P-42) System Heat Exchanger, and Division 2 (Loop B) Residual Heat Removal Heat Exchanger. These two heat exchangers were chosen based upon their importance in supporting required safety functions as well as relatively high risk achievement worth in the plant specific risk assessment. These heat exchangers were also selected to evaluate the licensee's thermal performance testing methods. During the inspection, the inspector reviewed completed surveillance tests and associated calculations, and performed independent calculations to verify that these activities adequately ensured proper heat transfer. The inspector reviewed the documentation to confirm that the test or inspection methodology was consistent with accepted industry and scientific practices, based on review of heat transfer texts and electrical power research institute standards (EPRI NP-7552, Heat Exchanger Performance Monitoring Guidelines, December 1991 and EPRI TR-107397, Service Water Heat Exchanger Testing Guidelines, March 1998) and Mark's Engineering Handbook.

The inspector reviewed condition reports concerning heat exchanger and ultimate heat sink performance issues to verify that the licensee had an appropriate threshold for identifying issues and entering them in the corrective action program. The inspector also evaluated the effectiveness of the corrective actions for identified issues, including the engineering justification for operability, if applicable.

The documents that were reviewed are included at the end of the report. Also attached is the information request sent to the licensee in preparation for this Heat Sink Inspection.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

.1 Facility Operating History

a. Inspection Scope

The inspectors reviewed the plant's operating history from December 2000 through October 2002, to assess whether the Licensed Operator Requalification Training (LORT) program had addressed operator performance deficiencies noted at the plant.

b. Findings

No findings of significance were identified.

.2 Licensee Requalification Examinations

a. Inspection Scope

The inspectors performed a biennial inspection of the licensee's LORT program. The inspectors reviewed the annual requalification operating and written examination material to evaluate general quality, construction, and difficulty level. The operating examination material consisted of three dynamic simulator scenarios and fourteen job performance measures (JPMs). The biennial written examination consisted of approximately 40 open reference, multiple choice questions. The written examination was organized into two parts, Part A and Part B. Part A used the static simulator as an open reference instrument. Part B was an open reference examination on administrative controls and procedural limits. The inspectors reviewed the methodology for developing the examinations, including the LORT program 2 year sample plan, probabilistic risk assessment insights, previously identified operator performance deficiencies, and plant modifications. The inspectors reviewed the licensee's program and assessed the level of examination material duplication during the current year annual examinations as compared to the previous year's annual examinations. The inspectors also interviewed members of the licensee's management, operations, and training staff and discussed various aspects of the examination development.

b. Findings

No findings of significance were identified.

.3 Licensee Administration of Requalification Examinations

a. Inspection Scope

The inspectors observed the administration of the requalification operating test to assess the licensee's effectiveness in conducting the test and to assess the facility evaluators' ability to determine adequate performance using objective, measurable performance standards. The inspectors evaluated the performance of one staff crew in parallel with the facility evaluators during three dynamic simulator scenarios. In addition, the inspectors observed licensee evaluators administer eleven JPMs to four licensed operators. The inspectors observed the training staff personnel administer the operating test, including pre-examination briefings, observations of operator performance, and individual and crew evaluations after dynamic scenarios. The inspectors evaluated the ability of the simulator to support the examinations. A specific evaluation of simulator performance was conducted and documented under Section 1R11.7, "Conformance With Simulator Requirements Specified in 10 CFR 55.46," of this report. The inspectors also reviewed the licensee's overall examination security program.

b. Findings

No findings of significance were identified.

.4 Licensee Training Feedback System

a. Inspection Scope

The inspectors assessed the methods and effectiveness of the licensee's processes for revising and maintaining its LORT program up to date, including the use of feedback from plant events and industry experience information. The inspectors interviewed licensee personnel (operators, instructors, training management, and operations management) and reviewed the applicable licensee's procedures. In addition, the inspectors reviewed the licensee's quality assurance oversight activities, including licensee's training department self-assessment reports, to evaluate the licensee's ability to assess the effectiveness of its LORT program and to implement appropriate corrective actions.

b. Findings

No findings of significance were identified.

.5 Licensee Remedial Training Program

a. Inspection Scope

The inspectors assessed the adequacy and effectiveness of the remedial training conducted since the previous annual requalification examinations and the training planned for the current examination cycle to ensure that they addressed weaknesses in licensed operator or crew performance identified during training and plant operations. The inspectors reviewed remedial training procedures and individual remedial training plans, and interviewed licensee personnel (operators, instructors, and training management). In addition, the inspectors reviewed the licensee's previous Nuclear Regulatory Commission (NRC) annual examination cycle remediation packages for unsatisfactory operator performance on the operating test to ensure that remediation and subsequent re-evaluations were completed prior to returning individuals to licensed duties.

b. Findings

No findings of significance were identified.

.6 Conformance With Operator License Conditions

a. Inspection Scope

The inspectors evaluated the facility and individual operator licensees' conformance with the requirements of 10 CFR Part 55. The inspectors reviewed the facility licensee's program for maintaining active operator licenses and to assess compliance with 10 CFR 55.53 (e) and (f). The inspectors reviewed the procedural guidance and the process for tracking on-shift hours for licensed operators and which control room positions were granted credit for maintaining active operator licenses. The inspectors

also reviewed nine licensed operators' medical records maintained by the facility's medical contractor and assessed compliance with the medical standards delineated in ANSI/ANS-3.4, "American National Standard Medical Certification and Monitoring of Personnel Requiring Operator Licenses for Nuclear Power Plants," and with 10 CFR 55.21 and 10 CFR 55.25. In addition, the inspectors reviewed the facility licensee's LORT program to assess compliance with the requalification program requirements as described by 10 CFR 55.59 (c).

b. Findings

No findings of significance were identified.

.7 Conformance With Simulator Requirements Specified in 10 CFR 55.46

a. Inspection Scope

The inspectors assessed the adequacy of the licensee's simulation facility (simulator) for use in operator licensing examinations and for satisfying experience requirements as prescribed in 10 CFR 55.46, "Simulation Facilities." The inspectors also reviewed a sample of simulator performance test records (i.e., transient tests and malfunction tests), simulator work order records, and the process for ensuring continued assurance of simulator fidelity in accordance with 10 CFR 55.46. The inspectors reviewed and evaluated the discrepancy process to ensure that simulator fidelity was maintained. This was accomplished by a review of discrepancies noted during the inspection to ensure that they were entered into the licensee's corrective action system and by an evaluation to verify that the licensee adequately captured simulator problems and that corrective actions were performed and completed in a timely fashion commensurate with the safety significance of the item (prioritization scheme). Open simulator discrepancies were reviewed for importance relative to the impact on 10 CFR 55.45 and 55.59 operator actions as well as on nuclear and thermal hydraulic operating characteristics. Furthermore, the inspectors conducted interviews with members of the licensee's simulator configuration control group and completed the IP 71111.11, Appendix C, checklist to evaluate whether or not the licensee's plant-referenced simulator was operating adequately as required by 10 CFR 55.46 (c) and (d).

b. Findings

No findings of significance were identified.

.8 Written Examination and Operating Test Results

a. Inspection Scope

The inspectors reviewed the overall Licensed Operator Annual Requalification Examination pass/fail results of the biennial written exam, individual job performance measure and simulator operating tests (required to be given per 10 CFR 55.59(a)(2)) administered by the licensee during calendar year 2002). The inspectors also reviewed applicability of the operating test results to the NRC Inspection Manual Chapter 0609,

Appendix I, "Operator Requalification Human Performance Significance Determination process (SDP)."

b. Findings

No findings of significance were identified.

.9 Requalification Activities Review by Resident Staff

a. Inspection Scope

On November 5, 2002, the resident inspectors observed licensed operator performance in the plant simulator. The evaluated scenarios included an anticipated transient without scram, a fire, and turbine building flooding.

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 of 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 Rule Implementation (71111.12)

.1 Periodic Evaluation

a. Inspection Scope

The objective of the inspection was to:

- Verify that the periodic evaluation was completed within the time restraints defined in 10 CFR 50.65, the Maintenance Rule (once per refueling cycle, not to exceed 2 years), ensuring that the licensee reviewed its goals, monitoring, preventive maintenance activities, industry operating experience, and made appropriate adjustments as a result of that review;
- Verify that the licensee balanced reliability and unavailability during the previous

refueling cycle, including a review of safety significant structures, systems, and components (SSCs);

- Verify that (a)(1) goals were met, corrective actions were appropriate to correct the defective condition including the use of industry operating experience, and (a)(1) activities and related goals were adjusted as needed; and
- Verify that the licensee has established (a)(2) performance criteria, examined any SSCs that failed to meet their performance criteria, or reviewed any SSCs that have suffered repeated maintenance preventable functional failures including a verification that failed SSCs were considered for (a)(1).

The inspectors examined the last two periodic evaluation reports for the time frames October 1997 through May 1999, and May 1999 through March 2001. To evaluate the effectiveness of (a)(1) and (a)(2) activities, the inspectors examined (a)(1) action plans, justifications for returning SSCs from (a)(1) to (a)(2), and a number of Condition Reports (CRs) (contained in the list of documents at the end of this report). In addition, the CRs were reviewed to verify that the threshold for identification of problems were at an appropriate level and the associated corrective actions were appropriate. The inspectors focused the inspection on the following systems:

- DG, Diesel Generator;
- HPCS, High Pressure Core Spray;
- RHR, Residual Heat Removal System; and
- RCIC, Reactor Core Isolation Cooling

In addition, the inspectors reviewed two self-assessments that addressed maintenance rule implementation at Perry.

b. Findings

No findings of significance were identified.

.2 Quarterly Review by Resident Staff

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 condition reports (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 Emergency Service Water system. 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 specific assessments were reviewed:

- The maintenance risk assessment for Division 2 Diesel Generator allowed outage time maintenance period during the week of November 10, 2002;
- The maintenance risk assessment for work planned for the week beginning November 18, 2002. The work week included switchyard work, Division 3 Diesel Generator maintenance, diesel driven fire pump maintenance, and instrumentation and control surveillances;
- The maintenance risk assessment for work planned for the week beginning December 2, 2002. The work week included a planned RCIC unavailability, Control Rod Drive Pump 'A' repair work, Emergency Closed Cooling motor operated valve testing, and Residual Heat Removal (RHR) Heat Exchanger 'B' performance testing; and
- The maintenance risk assessment for the planned Division 2 Outage conducted the week beginning December 9, 2002.

b. Findings

No findings of significance were identified.

1R14 Personnel Performance During Nonroutine Plant Evolutions (71111.14)

a. Inspection Scope

The inspectors observed and reviewed activities associated with the October 3, 2002, unit startup and subsequent grid synchronization on October 5. The inspectors observed crew communications, preshift briefings, and procedure usage.

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 Operability Determinations (ODs) associated with:

- Containment equipment drain sump cooler potentially undersized, completed October 15, 2002;
- Main steam shutoff valve packing adjustment, completed October 17, 2002;
- Scram discharge volume vent and drain valve actuator environmental qualification, completed October 31, 2002;
- Reactor water cleanup pressure and flow transients, completed October 29, 2002 and;
- An OD associated with an identified unreviewed manufacturing change to marathon control rods completed December 6, 2002.

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (OWAs) (71111.16)

a. Inspection Scope

The inspectors accompanied a plant operator, Nuclear Island Radiologically Restricted Area, during the performance of a normal rounds tour on November 6. The inspectors observed all log readings and equipment manipulations made by the operator. Any

actions which indicated a potential problem that could increase initiating event frequencies, impact multiple mitigating systems, or affect the ability to respond to plant transients and accidents were considered as possible OWAs. Additionally, the inspectors discussed the effect of active OWAs with the operator.

The inspectors evaluated the collective significance of outstanding OWAs to determine if the cumulative effects of OWAs to evaluate if the combined effects hindered operator's abilities to respond to plant transients and accidents. The inspectors reviewed the OWA log, individual OWAs and interviewed operators.

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 TS, the USAR, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications. In addition, the inspectors reviewed CRs associated with post-maintenance testing 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 post-maintenance activities were reviewed:

- Scram discharge volume vent and drain valve leak testing conducted following coupler replacement on September 30, 2002;
- Main steam shutoff valve testing following a packing adjustment on October 5, 2002;
- HPCS breaker testing following repair of a breaker cell switch performed on October 23, 2002;
- Standby liquid control testing following preventive maintenance of Limitorque valve operator on November 7, 2002;
- Master trip unit for RHR C Suction Pressure - Low Trip testing following replacement of Capacitor C25 performed on December 10, 2002; and
- RHR testing on December 12, 2002 following preventive maintenance on motor operated valves.

b. Findings

The inspectors identified a violation of TS Surveillance Requirement (SR) 3.6.1.9.1 in that the licensee failed to perform TS required surveillance testing, the appropriate post-maintenance testing, following packing adjustment of a main steam shutoff valve.

On October 5, 2002, the licensee tightened the packing on valve 1N11F0020B, a main steam shutoff valve. Main steam shutoff valves provide a redundant method to isolate flow in steam lines to reduce off-site dose in certain post-accident scenarios. The work, performed on a safety related motor operated valve, was performed using minor work order number 02-10886. The use of the minor work order was contrary to the requirements of licensee procedure NOP-WM-9001, "Minor Work Order," which did not allow packing adjustments on safety related motor operated valves. Because a minor work order was used, Senior Reactor Operator (SRO) review of the work package was not conducted. After the packing adjustment, no post-maintenance testing was performed. On October 9, 2002, a licensee reviewer identified the failure to perform post maintenance testing and on October 16 entered the deficiency in the corrective action program as CR 02-03829. The shift manager reviewed the CR and requested an OD to assist in evaluation of the valve's status.

The licensee's engineering staff completed the OD on October 17 with the recommendation that the valve be considered operable based on engineering calculations which concluded that the packing adjustment did not affect the ability of the valve to close within stroke time limitations. The inspectors noted, however, that the OD clearly stated that "per the requirements of Inservice Testing Program and TS 5.5.6, the valve would have to be declared inoperable since the PMT was not performed." While the inspectors realized that the engineering staff was asked for an engineering evaluation not a compliance assessment, the inspectors were concerned that multiple members of the engineering staff failed to recognize the TS compliance aspect, and, most significantly, that a shift manager (a SRO) accepted the OD and declared the valve operable.

Review of the sequence of events by the resident inspectors identified numerous errors, procedural violations and missed opportunities on the part of the licensee. In aggregate, these errors raised concerns over the licensee's integration of various site perspectives into a cohesive decision on operability. The errors started with the use of a minor maintenance package on a safety related motor operated valve. While this error was discovered during package closeout on October 9, the originator delayed writing the CR until October 15 with presentation to the shift manager on October 16. As a result, problem identification and resolution were delayed by a week. When Operations initially reviewed the CR, the shift manager did not recognize that a TS had been violated and requested engineering support for an OD. Engineering developed a technical argument to show that the valve could perform its intended function, however they did not recognize that an OD could not be used to justify non-performance of a TS required surveillance. Finally, even though the engineer documented in the OD that TS were not met, the shift manager accepted the technical basis and declared the system operable.

The inspectors concluded that the licensee was not in compliance with TS requirements. On October 18, the resident inspector discussed the OD with the shift manager, but the shift manager maintained his position that the OD sufficed as a basis for operability. On October 21, the inspectors brought this condition to the attention of the Operations Manager. Subsequently, the licensee declared the valve inoperable and scheduled PMT for the valve. The PMT was subsequently performed successfully.

Surveillance Requirement 3.6.1.9.1 specified that the licensee verify isolation times of main steam shutoff valves at a frequency in accordance with the Inservice Testing Program. The Inservice Testing Program specifically states that following adjustment of stem packing, stroke time testing will be performed. Contrary to this requirement, no stroke time testing was performed on the valve. The inspectors also noted that the condition was further aggravated by the licensee's use of an OD to declare the valve operable once the missed surveillance was initially identified. The licensee failed to recognize the TS compliance aspect until prompted, repeatedly, by the inspectors.

The inspectors determined that the TS violation was more than minor using guidance in Appendix B, of Inspection Manual Chapter 0612. The inspectors determined that the failure to perform PMT on a safety related component could reasonably be viewed as a precursor to a significant event. Using the Significance Determination Process (SDP), this issue was evaluated as having very low risk significance (Green) since, although the barrier integrity cornerstone was affected in that containment systems capability was not demonstrated through TS required surveillance testing, subsequent testing demonstrated that the system would have performed its intended safety function. This violation is being treated as a Non-Cited Violation (NCV 50-440/02-08-01) consistent with Section VI.A. of the NRC Enforcement Policy. This violation was entered in the licensee's corrective action system as CR 02-03939.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed surveillance testing or reviewed test data for risk-significant systems or components to assess compliance with TS, 10 CFR 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, 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 specific surveillance activities assessed included:

- HPCS room cooler heat balance on October 28, 2002;
- Visual inspection of safety related reactor water cleanup snubbers conducted October 30, 2002;

- Unit 1, Division 1 battery capacity performance testing conducted November 25, 2002;
- Functional test of average power range monitoring B Channel performed December 10, 2002; and
- Standby Liquid Control B Pump and valve operability testing conducted December 11, 2002.

b. Findings

No findings of significance were identified noted.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed the licensee's approved Temporary Modification (TM) 1-02-009 which eliminated a locked in annunciator for the 'A' Reactor Recirculation Pump motor bearing oil level high alarm. The scope of this TM was to change the annunciator circuit card jumper configuration. The inspectors reviewed the TM technical evaluation, bearing oil level trends, and the associated alarm response instructions to verify pump operability was maintained.

In addition, the inspectors reviewed a temporary repair of the Motor Feed Pump to stop a leak on an access plug. The inspectors reviewed the planned repair and considerations for foreign material exclusion as well as implementation of the repair.

b. Findings

No findings of significance were identified noted.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

.1 Plant Walkdowns and Radiation Work Permit Reviews

a. Inspection Scope

The inspectors reviewed the radiological conditions of work areas within radiation areas and high radiation areas (HRAs) in the radiologically restricted area to verify the adequacy of radiological boundaries and postings. This included walkdowns of high and locked high radiation area boundaries in the Auxiliary, Intermediate, Containment, and Radwaste Buildings. The inspectors performed independent measurements of area radiation levels and reviewed associated licensee controls to determine if the controls (i.e., surveys, postings, and barricades) were adequate to meet the requirements of

10 CFR Part 20 and the licensee's Technical Specifications (TSs). Radiation work permits (RWPs) for jobs having significant radiological dose potential were reviewed for protective clothing requirements and dosimetry requirements including alarm set points.

Radiological work planning was reviewed for potential airborne areas and engineering controls for mitigation of airborne activity. Reactor coolant isotopic data was evaluated for the presence of Neptunium-239, which is a predictor of other transuranic isotopes. The licensee had no uptakes resulting in 50 millirem or greater committed effective dose equivalent in 2002. Pre-job briefings were attended to verify that radiological conditions were adequately discussed with workers, and that workers were aware of potential radiological hazards and understood the actions required for electronic dosimeter alarms.

The inspectors reviewed the licensee's controls for high dose rate material that was stored in the spent fuel pool and the licensee's inventory of materials currently stored in the spent fuel pool to verify that the licensee had implemented adequate measures to prevent inadvertent personnel exposures.

b. Findings

No findings of significance were identified.

.2 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed the licensee's condition report (CR) database and corrective action documentation from January 2002, through November 2002, to evaluate problem identification and resolution in the areas of access control, radiological work planning, job coverage, radiation worker performance, and radiation protection technician performance. Self-assessments and audits of the radiation protection and chemistry organizations were evaluated and cognizant licensee personnel were interviewed to verify that problems were identified and entered into the corrective action program for resolution. The inspectors reviewed these documents to assess the licensee's ability to identify repetitive problems, contributing causes, the extent of conditions, and to develop corrective actions which will achieve lasting results.

b. Findings

No findings of significance were identified.

.3 Job In-Progress Reviews

a. Inspection Scope

The inspectors observed aspects of work activities that were being performed in areas having significant dose potential in order to ensure that adequate radiological controls had been implemented. The inspectors observed radiation protection preparations and

radiological controls for diving operations in the lower pool (spent fuel pool), and other radiologically significant jobs. The inspectors reviewed engineering controls, radiological postings, radiological boundary controls, radiation work permit requirements, radiation monitoring locations, dosimetry placement, and attended pre-job briefings to verify that radiological controls were effective in minimizing and tracking dose. The inspectors also observed radiation worker performance to verify that the workers were complying with radiological requirements and were demonstrating adequate radiological work practices.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed the licensee's controls for HRAs and very high radiation areas (VHRA) including the posting and control of these areas to verify the licensee's compliance with 10 CFR Part 20 and the site's TSs. Records of HRA/VHRA boundary and posting surveillances were reviewed and general area walk-downs were performed to verify their adequacy. Control of HRAs and VHRA's was discussed with radiation protection management, and the inspectors accompanied radiation protection technicians during a lock out of portions of containment in preparation for a potentially radiologically significant work evolution involving traversing incore probes.

b. Findings

No findings of significance were identified.

.5 Radiation Worker Performance

a. Inspection Scope

The inspectors evaluated radiation worker performance by observing the use of low dose waiting areas and proper use of protective clothing, based on RWP requirements. Radiological conditions were discussed with radworkers to determine worker awareness of significant radiological conditions and electronic dosimetry set points. Radiological problem condition reports were reviewed to determine if any weaknesses in radiation worker performance had been identified.

b. Findings

No findings of significance were identified.

.6 Radiation Protection Technician Performance

a. Inspection Scope

Radiation protection technician performance was evaluated with respect to radiological work requirements. The inspectors observed job coverage, control of contamination and exit boundaries during job evolutions, control of radworkers, and reviewed technician response to radiological incidents. Radiological problem condition reports were reviewed to determine if any technician errors had been identified.

b. Findings

No findings of significance were identified.

2OS2 As-Low-As-Is-Reasonably-Achievable (ALARA) Planning and Controls (71121.02)

.1 Job Site Inspections and ALARA Control

a. Inspection Scope

The inspectors reviewed jobs being performed in areas of potentially elevated dose rates and examined work sites in order to evaluate the licensee's use of ALARA controls to minimize radiological exposure. Job exposure estimates were reviewed and work areas were surveyed to determine radiological conditions. The ALARA briefing documentation including the use of engineering controls were evaluated for dose minimization effectiveness. During job site walkdowns, radiation workers and supervisors were observed to determine if low dose waiting areas were being used appropriately. Equipment staging, availability of tools, and work crew size were evaluated to determine the effectiveness of job supervision in dose minimization.

b. Findings

No findings of significance were identified.

.2 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed audits, self-assessments, and CRs related to the ALARA program including post job reviews of radiologically significant work to determine if problems were identified and properly characterized, prioritized, and entered into the corrective action program. ALARA packages and post job reviews were evaluated to determine if radiological work problems/deficiencies had been identified, if adequate safety evaluations were performed, and the problems were entered into the licensee's corrective action system.

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation (71121.03)

.1 Calibration of Radiological Instrumentation

a. Inspection Scope

The inspectors reviewed calibration records for the year 2002 for those instruments utilized for surveys of personnel prior to egress from the radiologically restricted area and the protected area. In addition, calibration records and selected nuclear libraries for the whole body counter were reviewed to verify that these instruments were calibrated adequately, consistent with station procedures and industry standards. The inspectors examined portable survey instruments in use during plant tours to verify that those instruments designated “ready for use” had current calibrations, had been source checked, were operable and were in good physical condition.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES (OA)

Cornerstones: Mitigating Systems, Occupational Radiation Safety, and Public Radiation Safety

4OA1 Performance Indicator (PI) Verification (71151)

.1 Mitigating Systems PI Verification

a. Inspection Scope

The inspectors reviewed reported second and third quarter performance indicators for RHR system performance indicators for system unavailability using the definitions and guidance contained in Nuclear Energy Institute (NEI) 99-02, “Regulatory Assessment Indicator Guideline,” revision 2. The inspectors reviewed station logs, CRs, TS logs, and surveillance procedures to verify the accuracy of the licensee’s data submission.

b. Findings

No findings of significance were identified.

.2 Occupational and Public Radiation Safety PI Verification

a. Inspection Scope

The inspectors reviewed the licensee's determination of performance indicators for the occupational and public radiation safety cornerstones to verify that the licensee accurately determined these performance indicators and had identified all occurrences required. These indicators included the Occupational Exposure Control Effectiveness and the Radiological Effluent TSS/Offsite Dose Calculation Manual Radiological Effluent Occurrences. The inspectors reviewed CRs for the year 2002, quarterly offsite dose calculations for radiological effluents for the previous 4 quarters and access control transactions for the year 2002. During plant walkdowns (Sections 2OS1.1, 2OS1.4), the inspectors also verified the adequacy of postings and controls for locked HRAs, which contributed to the Occupational Exposure Control Effectiveness performance indicator.

The inspectors also reviewed the licensee's reactor coolant system activity performance indicator for the reactor safety cornerstone to verify that the information reported by the licensee was accurate. The inspectors reviewed the licensee's reactor coolant sample results for maximum dose equivalent iodine-131, December 2001 through November 2002, and the licensee's sampling and analysis procedures. The inspectors also observed a chemistry technician obtain and analyze a reactor coolant sample.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Evaluation of Industry Operating Experience

a. Inspection Scope

The inspectors reviewed the licensee's actions in response to selected NRC Information Notices to verify that the licensee considered industry experience in plant operation. The inspectors reviewed condition reports, procedures, and proposed modifications as well as interviewed key plant personnel.

b. Findings and Observations

The inspectors concluded that the licensee was evaluating NRC Information Notices for relevance and entering the notice into the corrective action program when relevant. The licensee took actions when appropriate. The inspectors observed that some of the corrective actions require modifications; however, the licensee has not determined if they will be effected during the upcoming refueling outage. No findings of significance were identified.

.2 Foreign Material Exclusion (FME) Program

a. Inspection Scope

The inspectors reviewed the licensee's FME program. The inspectors reviewed program documents, condition reports, and corrective action plans. Additionally, the inspectors reviewed licensee staff compliance with and comprehension of program requirements by reviewing zone 3 access point material accountability control logs, reviewing work package material accountability control logs, and interviewing all levels of plant personnel including, but not limited to, the maintenance manager, FME program coordinator, plant operators, security officers, and maintenance workers.

b. Findings and Observations

Based on direct observation and interviews, the inspectors concluded that zone 3 FME controls were not consistently applied by plant personnel. The inspector's observations were entered in the licensee's corrective action program as CR 03-00045, "Zone 3 Material Accountability Logging."

4OA3 Event Followup (71153)

- .1 (Closed) URI 50-440/02-04-02: Interpretation of ASME Code NF3276.2(c) for Vertical Risers. This item involved inspector identification of a specific case where the licensee incorrectly applied the ASME Code. Although the licensee agreed with the inspectors regarding the specific calculation, the licensee acknowledged that there were other examples where they had similarly applied the Code. However, the licensee disagreed that the Code was mis-applied; therefore, they planned to seek a Code interpretation. This item had been left open to evaluate the outcome of the Code interpretation on the licensee's calculations. However, as the item is contained in the licensee's corrective action program, NRC had determined that it is not necessary to have the item remain open. This item is closed.
- .2 (Closed) Licensee Event Report (LER) 50-440/2002-001-00: Unplanned Automatic Scram During Main Turbine Mechanical Trip Weekly Testing. On September 22, 2002, the plant experienced a turbine control valve fast closure reactor scram due to a turbine trip which occurred during routine weekly turbine overspeed testing. The licensee's review determined that the turbine trip was caused by a failure of the turbine trip latch mechanism to reset at the conclusion of the weekly test. Following the scram, the licensee was unable to drain the scram discharge volume. Further investigation revealed that a scram discharge volume drain valve stem coupling had failed, thus the valve would not reopen when the scram was reset. Inspector response associated with this event is documented in IR 50-440/2002-006. The inspectors reviewed the LER. The inspectors identified that the licensee's abstract text incorrectly stated that the scram discharge volume drain valve failed to close but the licensee correctly characterized the event in the body of the LER. The licensee informed the inspectors a supplement would be submitted to correct the error. This LER is closed.

.3 High Pressure Core Spray (HPCS) Pump Failure to Start

A self-revealed apparent violation of TS 5.4 occurred when the HPCS pump failed to start during a surveillance test. Troubleshooting revealed that contacts required for starting the HPCS pump were misaligned. The licensee performed one PMT and two inspections of the circuit breaker that would have detected the misalignment of contacts had the procedure been properly followed. The NRC assessed this finding in accordance with Inspection Manual Chapter 0609 and made a preliminary determination that it was an issue with some increased importance to safety.

On October 23, 2002, the HPCS pump failed to start during routine testing of the HPCS room cooler heat exchanger. Subsequent troubleshooting revealed that a set of contacts within the circuit breaker cabinet that provide a close permissive signal were not fully engaged, thus preventing remote or automatic start of the HPCS pump. When the HPCS breaker is inserted into its enclosure, the breaker contacts a lever arm which raises an actuator arm to rotate a set of contacts known as a cell switch. The cell switch rotates 90° as the breaker is racked into its enclosure. When fully racked in, one of the contacts on the cell switch provides a permissive signal for breaker closure. In the as found condition, the actuating arm was too long which resulted in a condition in which the cell switch did not achieve full contact engagement. While this permitted several successful starts of the HPCS pump, the as found condition was susceptible to, and finally succumbed to, minor changes in tolerances that resulted in incomplete engagement of the close permissive contacts. Licensee procedures for cell switch inspection stipulated that normally open contacts be in the flat horizontal position prior to breaker installation. In the as found condition, these contacts were not in the flat, horizontal position. In order to achieve this alignment, the licensee was required to remove 3/8 of an inch from the actuating arm. Both the licensee's root cause evaluation and the inspector's review of the event concluded that given the amount of material removed from the actuating arm, the as found misalignment of the contacts could not be attributed to normal wear and tear of the breaker. The HPCS system was subsequently declared operable on October 24, 2002.

The licensee's root cause investigation identified several opportunities to prevent this occurrence. In 1994, the licensee replaced the HPCS breaker. Post-installation, the licensee's inspections failed to identify the contact misalignment. Subsequent inspections of the cell switch in 1998 and 2002 also failed to identify the poor alignment of the cell switch. In addition, the breaker failed a PMT in 1998; however, the licensee was not able to ascertain the cause of this failure and subsequently successfully tested the breaker.

The inspectors evaluated this finding under the SDP. The inspectors concluded that this finding directly affects the mitigating system cornerstone objective of safety system availability. The inspectors evaluated the finding under phase 1 of the SDP process and determined a phase 2 evaluation was needed. The inspectors based this conclusion on the loss of the HPCS safety function since in the as found condition HPCS would not start automatically or manually from the control room. The inspectors concluded that no specific event could be used to establish the time HPCS became inoperable. Therefore, the HPCS system was considered to be unavailable for a duration of 23 days. This was

based on the HPCS system being unavailable from August 28 to October 23, 2002, the time from last successful surveillance until time of discovery. However, the plant was in an outage during this period from September 23 through October 3, 2002, and HPCS availability was not required. Using the T/2 approach, the inspectors considered the HPCS system to be unavailable for the total time period minus the outage time divided by 2.

The initial Phase 2 risk assessment characterized this finding as Yellow using the benchmarked site specific Risk-Informed Inspection Notebook. However, a Phase 3 analysis performed by the regional Senior Reactor Analyst (SRA) determined the issue was a White finding. The SRA reviewed the SDP Summary Report which compared the Risk-Informed Inspection Notebook worksheets against the licensee's updated probabilistic risk assessment (PRA). This process compared the SDP results for a duration of greater than 30 days against the licensee's PRA results for a one year duration. The SRA determined that the Risk-Informed Notebook results provided a one order of magnitude greater risk significance than both the licensee's PRA and the Standardized Plant Analysis of Risk (SPAR) model.

Technical Specification 5.4 states, in part, that procedures shall be established, implemented and maintained as recommended in Regulatory Guide 1.33. Regulatory Guide 1.33 recommended procedures for performing maintenance that can affect performance of safety related equipment. Contrary to this requirement, the licensee failed to follow the procedure for breaker installation and inspection. Specifically, the licensee's procedure, GEI-0135, "ABB Power Circuit Breakers 5 KV Types 5HK250 and 5HK350 Maintenance," required inspection to confirm that open contacts are in the flat, horizontal position. While the procedure allows for deviation from the flat horizontal alignment, clear make/break of the contacts must be observed. The physical configuration of the cell switch prevents observation of contact make/break; therefore, the open contacts must be in the flat, horizontal position to comply with the procedure. In the as found condition, the cell switch was significantly out of the flat horizontal condition. Pending completion of a final safety significance review, this issue is an **Apparent Violation (AV) (AVI 50-440/02-08-02)**. The licensee has entered this apparent violation into its corrective action program as CR 02-03972.

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to Mr. T. Rausch, General Manager and other members of licensee management at the conclusion of the inspection on January 9, 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 Meetings

Interim exits were conducted for:

- Biennial Operator Requalification Program Inspection with Mr. T. Rausch on November 1, 2002;
- Heat Sink Inspection with W. Kanda and T. Rausch on November 7, 2002;
- Licensed Operator Requalification 71111.11B with Mr. R. Gemberling, Operations Requalification Training Lead, on December 17, 2002, via telephone;
- Access Control, ALARA, Instrumentation and performance indicator verification with Mr. T. Lentz and Mr. K. Ostrowski on October 17 and December 12, 2002; and
- Maintenance Rule Implementation - Periodic Evaluation with T. Rausch on December 19, 2002.

40A7 Licensee-Identified Violations

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

The use of the minor work order was contrary to the requirements of licensee procedure NOP-WM-9001, "Minor Work Order," which did not allow packing adjustments on safety related motor operated valves. Because a minor work order was used, SRO review of the work package was not conducted. Section 4A07 of this report documents the licensee identified green NCV of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for failure to use documented instructions, procedures, or drawings, of a type appropriate to the circumstances. After the packing adjustment, no post-maintenance testing was performed.

KEY POINTS OF CONTACT

Licensee

W. Kanda, Vice President-Nuclear
T. Rausch, General Manager, Nuclear Power Plant Department
D. Bowen, Licensing
R. Coad, Radiation Protection Manager
R. Collings, Training Manager
W. Colvin, Perry Maintenance Rule Coordinator
F. Eichenlaub, Plant Performance Engineer
R. Gemberling, Licensed Operator Requalification Training Lead
R. Hayes, Chemistry Manager
V. Higaki, Manager, Regulatory Affairs
R. Kearny, Operations Manager
T. Lentz, Acting Director Nuclear Engineering
L. Lindrose, Supervisor Nuclear Security Operation
B. Luthanen, Compliance Engineer
T. Mahon, Site Protection Section Manager
J. McHugh, Operations Training Unit Superintendent
K. Meade, Supervisor, Compliance
K. Ostrowski, Director, Nuclear Maintenance
J. Palinkas, Supervisor, Security Systems and Administration
B. Panfil, Simulator Support
D. Phillips, Manager, Plant Engineering
T. Rausch, General Manager, Nuclear Power Plant Department
M. Rossi, Performance Engineer
K. Russell, Compliance Engineer - Nuclear Licensing
S. Sovizal, Supervisor, Security Training
R. Strohl, Superintendent, Plant Operations
L. VanDerHorst, Health Physics Supervisor

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-440/02-08-01	NCV	Failure to Perform TS Required Testing
50-440/02-08-02	AV	High Pressure Core Spray Pump Failure to Start
50-440/2002-001-00	LER	Unplanned Automatic Scram During Main Turbine Mechanical Trip Weekly Testing

Closed

50-440/02-04-02	URI	Interpretation of ASME Code NF3276.2(c) for Vertical Risers
50-440/02-08-01	NCV	Failure to Perform TS Required Testing
50-440/2002-001-00	LER	Unplanned Automatic Scram During Main Turbine Mechanical Trip Weekly Testing

LIST OF ACRONYMS USED

ALARA	As Low As Reasonably Achievable
ASME	American Society of Mechanical Engineers
CR	Condition Report
DG	Diesel Generator
EPRI	Electrical Power Research Institute
FME	Foreign Material Exclusion
HPCS	High Pressure Core Spray
HRA	High Radiation Area
JPM	Job Performance Measure
LER	Licensee Event Report
LORT	Licensed Operator Requalification Training
NEI	Nuclear Energy Institute
NCV	Non-Cited Violation
NEI	Nuclear Energy Institute
NRC	Nuclear Regulatory Commission
OD	Operability Determination
OWA	Operator Workaround
PEI	Perry Emergency Instruction
PI	Performance Indicator
PMT	Post-maintenance testing
PRA	Probabilistic Risk Assessment
RCIC	Reactor Core Isolation Cooling
RHR	Residual Heat Removal
RO	Reactor Operator
RWP	Radiation Work Permit
SDP	Significance Determination Process
SPAR	Standardized Plant Analysis of Risk
SR	Surveillance Requirement
SRA	Senior Reactor Analyst
SRO	Senior Reactor Operator
SSC	Structure, System & Component
SVI	Surveillance Instruction
TM	Temporary Modification
TS	Technical Specification
URI	Unresolved Item
USAR	Updated Safety Analysis Report
VHRA	Very High Radiation Area
VLI	Valve Lineup Instruction

LIST OF DOCUMENTS REVIEWED

1R01 Adverse Weather

PTI-GEN-P0026	Preparations For Winter Weather	Rev. 0
PTI-GEN-P0027	Cold Weather Support System Startup	Rev. 0
ONI-R36-2	Extreme Cold Weather	Rev. 0
SOI-R36	Heat Trace and Freeze Protection System	Rev. 5
ICI-C-R36-1	Heat Tracing and Freeze Protection Panels	Rev. 2
	Operation and Maintenance Manual Heat Trace Control System Supplied By Nelson Electric Model 3600 Series Modular Temperature Control System	Rev. 3
ONI-P40	Frazil Ice	Rev. 1

1R04 Equipment Alignment

LCO 3.7.3	Control Room Emergency Recirculation	
VLI-M25/26	Control Room HVAC and Emergency Recirculation System	Rev. 6
SDM-M25/26	Control Room HVAC and Recirculation System	Rev. 5
CR 01-0247	M25 Inlet "A" Train Modification	January 22, 2001
CR 01-0139	M25/26 Compensatory Actions Remain Open with No Work Planned	January 13, 2001
VLI-R44	Division 1 and 2 Diesel Generator Starting Air System(unit 1)	Rev. 4
VLI-R45	Division 1 and 2 Diesel Generator Fuel Oil System	Rev. 4
VLI-R46	Division 1 and 2 Diesel Generator Jacket Water Systems	Rev. 3
VLI-R47	Division 1 and 2 Diesel Generator Lube Oil	Rev. 4
VLI-R48	Division 1 and 2 Diesel Generator Exhaust, Intake and Crankcase Systems	Rev. 4
302-0351-00000	Standby Diesel Generator Starting Air	Rev. W
302-0352-00000	Standby Diesel Generator Fuel Oil System	Rev. DD

302-0354-00000	Standby Diesel Generator Jacket Water	Rev. R
302-0353-00000	Standby Diesel Generator Lube Oil	Rev. R
302-0355-00000	HPCS and Standby Diesel Generator Exhaust, Intake and Crankcase	Rev. R
VLI-E22A	High Pressure Core Spray (Unit 1)	Rev. 5
VLI-E51	Reactor Core Isolation Cooling System	Rev. 3
VLI-P42	Emergency Closed Cooling System	Rev. 7
CR 00-3859	Conflict on Full Performance Credit for SVI-P42T2001	December 13, 2000
CR 01-1715	ECC-B Surge Tank Valve 1P42-F0668 Out of Position	April 2, 2001

1R05 Fire Protection

Drawing E-023-007	Fire Protection Evaluation - Units 1 and 2 Control Complex Plan - El. 599'-0"	Rev. 11
Drawing E-023-008	Fire Protection Evaluation - Units 1 and 2 Intermediate and Fuel Handling Buildings Plan - El. 599'-0"	Rev. 11
Drawing E-023-011	Fire Protection Evaluation - Units 1 and 2 Control Complex and Diesel Generator Building Plan - El. 620'-6"	Rev. 11
Drawing E-023-012	Fire Protection Evaluation - Units 1 and 2 Intermediate and Fuel Handling Buildings Plan - El. 620'-6"	Rev. 11
Drawing E-023-015	Fire Protection Evaluation - Units 1 and 2 Control Complex and Diesel Generator Building Roof Plan - Elevations 638'-6" and 646'-6"	Rev. 11
Drawing E-023-016	Fire Protection Evaluation - Units 1 and 2 Intermediate and Fuel Handling Buildings Plan - El. 639'-6", 654'-6"	Rev. 11
Drawing E-023-024	Fire Protection Evaluation - Units 1 and 2 Intermediate and Fuel Handling Buildings Plan - El. 682'-6"	Rev. 11
USAR Section 9A.4.2.1.7	Fire Zone 1AB-1g	

USAR Section 9A.4.2.1.10	Fire Zone 1AB-3b	
USAR Section 9A.4.3.2	Fire Zone IB-2	
USAR Section 9A.4.3.3	Fire Zone IB-3	
USAR Section 9A.4.3.4	Fire Zone IB-4	
USAR Section 9A.4.3.5	Fire Zone IB-5	
USAR Section 9A.4.4.3.1.3	Fire Area 1CC-3c	
USAR Section 9A.4.4.3.1.2	Fire Area 1CC-3b	
USAR Section 9A.4.5.1.2	Fire Area 1DG-1b	
USAR Section 9A.4.4.2	Unit 1 and 2 Fire Areas, Floor 2 (CC-2)	
USAR Section 9A.4.4.4	Fire Areas, Floor 4	
FPI-1AB	Pre-Fire Plan Instruction, Auxiliary Building	Rev. 0

1R07 Biennial Review of Heat Sink Performance

Calculation E12-89	Required ESW Flow for the RHR Hxs	Revision 3
Calculation E12-98	Residual Heat Removal B/D Performance Test Results Evaluation - 11/17/99	Revision 0
Calculation E12-98	Residual Heat Removal B/D Performance Test Results Evaluation - 11/29/2000	Revision 1
P42-039	Design Basis Heat Load & Required ESW Flow to the ECC Hxs	Revision 2
P42-43	ECC "A" HX Performance Test Evaluation 9/9/98	Revision 1
P42-45	ECC "A" HX Performance Test Evaluation 9/14/99	Revision 0

	Inspection Report for 1 E12B001B/D - RHR B/D HX	April 6, 1999
	Inspection Report for 1 P42-B001A - P42 A HX	September 28, 1997
GEK-90389	RHR HXs Vendor Manual	February 1984
GAI File Number 96-035-0-01	ECC HXs Vendor Manual	June 16, 1978
CR 00-3557	Potential Error Calculation Hoff Number in PROTO-HX and PROTO-FLO Models	November 15, 2000
CR 01-1453	Potential Error in Design Heat Load for ECC HX	March 15, 2001
CR 01-2442	Degraded ESW Flow Through Division 2 DG HX	June 13, 2001
CR 01-3710	Silt Removal Criteria for SWPH	October 22, 2001
CR 01-3711	Silt Removal Criteria for ESWPH	October 22, 2001
CR 02-00151	Results Obtained From Computer Program (PROTO-HX) Do Not Match Spec Sheet	January, 17, 2002
CR 02-00326	PA02-03 Audit Finding, OD Not Appropriately Utilized on ESW	January 31, 2002
CR 02-00599	Latent Issues, ESW Piping Analysis	February 28, 2002
CR 02-01004	Emergency Service Water "B" Flow Less Than 7300	April 3, 2002
CR 02-01217	ESWPH & Intake Tunnel Silt Removal	April 22, 2002
CR 02-01230	Modeling Error in DI-229 to Support Perform	April 24, 2002
CR 02-01282	Request for Assistance for Operator Training	April 29, 2002
CR 02-1633	Documentation of Silt Inspection of ESWPH	October 22, 2001
CR 02-03180	Emergency Closed Cooling System Calculation Heat Load Discrepancy	September 10, 2002
CR 02-03220	Timeliness in the Identification and Processing of CRS	September 12, 2002
CR 02-04163	SA 538-NQA-2002: Timely Resolution of Degraded Condition (ESW/P45)	November 4, 2002
CR 02-2168	Foreign Material Found in ESWPH Forebay;	July 1, 2002

1R11 Licensed Operator Requalification

Licensee Event Report (LER) 2001-01	Manual Scram Due to Decreasing Main Condenser Vacuum and Invalid Division 2 and 3 ECCS Actuations	June 14, 2001
LER 2001-03	Loss of Feedwater Scram and Specified System Actuations Including ECCS [Emergency Core Cooling System] Injections	August 20, 2001
LER 2001-05-01	Automatic RPV [Reactor Pressure Vessel] Level SCRAM, Specified Systems Activations and Inoperability of the Division 3 Diesel Generator	February 13, 2002
	Examination Security Agreement Form 6413	Revision A
	NRC Inspection Report 50/440-00-14	January 18, 2001
	NRC Inspection Report 50/440-01-04	April 19, 2001
	NRC Inspection Report 50/440-01-08	June 5, 2001
	NRC Inspection Report 50/440-01-10	September 5, 2001
	NRC Inspection Report 50/440-01-11	August 22, 2001
	NRC Inspection Report 50/440-01-12	October 19, 2001
	NRC Inspection Report 50/440-01-13	December 12, 2001
	NRC Inspection Report 50/440-01-15	January 30, 2002
	NRC Inspection Report 50/440-01-16	March 18, 2002
	NRC Inspection Report 50/440-02-02	April 17, 2002
	NRC Inspection Report 50/440-02-05	July 30, 2002
PTSG-07	Simulator Scenario Guide Preparation, Review and Approval	Revision 0
PTSG-15	Performance Evaluation Preparation, Review, Revision, Approval and Administration	Revision 0
TMA-4106	Simulator Scenario Guide Preparation, Review, Revision and Approval	Revision 3
TMA-4110	Simulator Training Administration	Revision 3
TMA-4206	Control Room Simulator Configuration Management Program	Revision 4
TMG-1007	Implementation of Training	Revision 5

TMP-2002	Licensed Operator Requalification Program	Revision
PAP-0201	Conduct of Operations	Revision 10
DG-13	Simulator Processes and Programs	Revision 0
OTG-5;	Continuing Training Program Administration	Revision 6
EDG-97-003	Review of Operating Instructions for USAR/Design Basis Impact	Revision 2
	FENOC; Expectations Handbook - Operations Section	Revision 3
	2002 Cycle Focus Items, Specifically for Staff Crew #1 plus Samples for All Other Crews	
	Medical Evaluation Records; Various (3 RO, 6 SRO)	
	Maintenance of Active License Records; Various (3 RO, 3 SRO)	
	Simulator Work Order Summary - Open Items	
	Simulator Work Order Summary - Closed Items	
	Justification for Using the Perry Training Simulator Cycle 8 Core Model During Cycle 9 License Operator Training Programs	November 5, 2001
	ANSI Appendix B Transient Test for 2002 (sample)	
	Simulator Certification Test - Malfunction Test, (sample), pre 1998	
	Simulator Certification Test - Normal Plant Evolutions, (sample), 1996 - 1999	
	Licensed Operator Requalification Exam Sample Plans - 2002; Week 1- 7	
	Simulator Examination Summary Sheets, for Cycle 2, 2001, Cycle 5, 2001 (2001 Annual Operating Exam), Cycle 8, 2002, and Annual Operating Exam Conducted October 29, 2002	
	Remediation Documentation for Cycle 2, 2001, Cycle 5, 2001 (2001 Annual Operating Exam), and Cycle 8, 2002	
	Attendance Checklists For Cycle 2, 2001, Cycle 5, 2001, and Cycle 8, 2002	

Dynamic Simulator Individual Evaluation Sheets
For Cycle 2, 2001, Cycle 5, 2001 (2001 Annual
Operating Exam), and Cycle 8, 2002

Master Licensed Operator Requalification
Schedule From January 10, 2001, to
December 12, 2002

	Written Test ID Number 02-001, RO [Reactor Operator] Part 'B' Requalification Exam	October, 14, 2002
	Written Test ID Number 02-002, SRO [Senior Reactor Operator] Part 'B' Requalification Exam	October, 14, 2002
	Written Test ID Number 02-003, RO [Reactor Operator] Part 'B' Requalification Exam	October, 21, 2002
	Written Test ID Number 02-035, RO [Reactor Operator] Part 'A' Requalification Exam	October, 14, 2002
	Written Test ID Number 02-036, SRO [Senior Reactor Operator] Part 'A' Requalification Exam	October, 14, 2002
	Scenario Set OT-3070-PSC5	Revision 3
	Scenario Set OT-3070-RP2C	Revision 2
	Scenario Set OT-3070-PC3A	Revision 4
JPM OT-3701-E51_02	Manually Startup RCIC [reactor core isolation cooling] From Standby Readiness	Revision 0
JPM OT-3701-T23_01	Open Turbine Building Roll Up Door North	Revision 0
JPM OT-3701-C41_08	Inject Into The Reactor Pressure Vessel Using Alternate Boron Injection	Revision 0
JPM OT-3701-E12_10	Lineup In-plant Portion of Residual Heat Removal B Flood Alternate Injection	Revision 0

1R12 Maintenance Effectiveness

CR 01-2257	Relief Valve Removed from 1P45F543B Fails As-Found Set Pressure Testing	May 17, 2001
CR 01-2159	Valve Removed from 1P45F31A Failed As-found Set Pressure Testing	May 8, 2001
CR 01-1821	Maintenance Rule Evaluation Required on Div 3ESW Flow Indication	April 11, 2001

CR 01-1244	Relief Valve 1P54F0520 Failed As-left Seat Leakage Test	May 9, 2001
CR 01-1335	Relief Valve 1P54F0517 Fails As-found Lift Test	May 9,2001
CR 02-00326	PA02-03 Audit Finding, OD not Appropriately Utilized on ESW	January 31, 2002
CR 01-2257	Relief Valve removed from 1P45F543B Fails As-Found Set Pressure Testing	May, 17 2002
CR 02-00534	Maintenance Rule Evaluation of 1E12R602B Maintenance Rule Functions, Performance Criteria and Classifications	February 19, 2002 Rev 5.04
PAP-1125	Monitoring the Effectiveness of Maintenance Program Plan	Rev. 6
PYBP-PES-0001	Maintenance Rule Reference Guide	Revision 12
PAP-1125	Monitoring the Effectiveness of Maintenance Program Plan	Revision 6
Calculation No. SM-05	System Notebook - Residual Heat Removal (RHR) System, E12	Revision 2
Calculation No. SM-08	System Notebook - Reactor Core Isolation Cooling (RCIC), E51	Revision 2
Calculation No. SM-07	System Notebook - High Pressure Core Spray (HPCS), E22	Revision 2
Calculation No. G41-42	Fuel Handling Building Pools Heat-up Analysis	Revision 6
Calculation No. SM-20	Standby Diesel Generator (DG) System, R43, High Pressure Core Spray Diesel Generator System, E22B	Revision 0
Calculation No. G41-38	Time-to-Boil Water in Reactor Vessel and Upper Pools During Refueling	Revision 6
Calculation No. RXE-0001/00	RF08 Decay Heat Calculation	August 18, 2000
Calculation No. 6.16	Determination of Level 1 Probabilistic Safety Assessment Safety Significant System, Structures, and Components (SSCs) for the Perry Nuclear Power Plant Maintenance Rule	July 1, 1999
CR 00-1639	The Diesel Driven Fire Pump Has a Missing Bolt Around the Turbo Charger	May 25, 2000

CR 00-2267	Control Room Chiller was Not Running, There Were No Alarms That Indicated the Chiller Had Tripped	July 19, 2000
CR 00-2516	While Attempting to Start the "B" Combustible Gas Mixing Compressor for SVI M51-T2003B, the Switch was Taken to Start and the Compressor Did Not Start	August 20, 2000
CR 00-2531	While Performing SVI-G43-T1307 Step 5.1.18, "As Found" Data was Out of the Allowable Value	August 21, 2000
CR 01-1483	M23C0002A Fan Failed to Start in the Division 1 Loss of Offsite Power /Loss of Coolant Accident Fan Start Logic	March 17, 2001
CR 00-3857	Diesel Driven Emergency Fire Pump Failed to Start	December 12, 2000
CR 01-1711	Broken Fuse Block for Gas Mixing Compressor A	April 1, 2001
CR 00-3839	Fuel Function (a)(1) - Goal Setting and Goal Monitoring for the Fuel Function	December 11, 2000
CR 02-02647	Maintenance Rule Structure Monitoring - PY-C-02-03	August 7, 2002
CR 02-02663	RFA - Maintenance Rule Program Enhancements -PY-C-02-03	August 9, 2002
CR 00-1473	System Flow on Fan 1M15-C0001A was Outside the Nominal Flow Band	May 15, 2000
CR 00-1549	During Normal Operation of the Power Plant, Received an Unexpected Half Main Steam line Isolation Signal From the Division 2 Leak Detection System	May 22, 2000
	Maintenance Rule Monitoring Program Periodic Assessment Report of Maintenance Effectiveness for Operating Cycle 8 (May 2, 1999 - March 21, 2001)	June 17, 2002
	Maintenance Rule Monitoring Program Periodic Assessment Report of Maintenance Effectiveness for Operating Cycle 7 (October 20, 1997 - May 2, 1999)	July 26, 2000
	Perry Nuclear Power Plant System Health Report - Third Quarter 2002	

Oversight and Process Improvement Nuclear Quality Assessment - Maintenance Rule and System Health; (July 17, 2002 - August 9, 2002)

List of Condition Reports and Work Orders for Diesel Generator, High Pressure Core Spray, Residual Heat Removal System, and Reactor Core Isolation Cooling (Oct. 1999 - Oct. 2000)

List of Condition Reports for Foreign Material Exclusion Problems (January 2000 - December 2002) December 18, 2002

List of Functional Failures and Maintenance Preventable Functional Failures December 17, 2002

Memorandum (Maintenance Rule Expert Panel Meetings: August 4, 1999, September 29, 1999, July 26, 2000, July 5, 2000, July 7, 2000, July 12, 2000, July 25, 2000, September 13, 2000, November 22, 2000, January 10, 2000, January 10, 2001 (Panel # 183 & # 184), February 7, 2001, June 13, 2001 (Panel #186 & #187 & #188), February 22, 2002 (Panel #195 & #196), June 10, 2002, March 6, 2002, April 10, 2002)

Maintenance Rule Functions, Performance Criteria, and Classifications May 15, 2002

List of Current (a)(1) Maintenance Rule Systems November 20, 2002

CR Issued as a Result of Inspection

CR 02-04837 Perry Maintenance Rule Program Has a Vulnerability to Not Comprehensively Monitor Failures and Conditions to Demonstrate That the Performance of Systems, Structures, and Components were Effectively Controlled Through the Performance of Appropriate Maintenance December 19, 2002

CR 02-04843 Question on the Adequacy of the Documentation for Revising the Risk Significance of the Hydrogen Ignition System From High to Low in Calculation 6.17 December 19, 2002

CR 02-03555	Corrective Action Number 11; Review the Additional Information in Condition Report 02-04837, NRC Maintenance Rule Inspector Identified Program Vulnerability, to Properly Consider the Full Extent of the Condition Report 02-03555 Corrective Action to Comprehensively Monitor Failures and Conditions	December 23, 2002
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1R13 Maintenance Risk Assessments and Emergent Work Control

PAP-1924	On-line Safety and Configuration Risk Management	Rev. 2
PDB-C0011	PSA Presolved Configurations for On-line Risk Management	Rev. 2
	Div. 2 Allowed Outage Time Overview	
	Week 4, Period 8 Forecast Risk Profile	November 18, 2002
	Week 6, Period 8 Forecast Risk Profile	December 2, 2002
	Week 7, Period 8 Forecast Risk Profile	December 9, 2002

1R15 Operability Evaluations

CR 02-03831	Containment Equipment Drain Sump Cooler Potentially Undersized	November 15, 2002
SDM G61	Liquid Radwaste Sumps System	Rev. 4
DWG 302-0672-00000	Reactor Water Cleanup System	Rev. DD
DWG D-911-601	Reactor Building Drains	Rev. J
P1141	Break Exclusion Subsystem 1G61G03A Penetrations P-417	October 14, 1983
P0929	Recalculate Fatigue Usage Factor Using a Code Allowed Fatigue Strength Reduction Factor	August 8, 1985
LCO 3.6	Containment Systems	
CR 02-03829	Minor Maintenance performed on Safety Related Equipment	October 9, 2002
TS 3.6.1.9	Main Steam Shutoff Valves	
TS 5.5.6	Inservice Testing Program	

TAI-1102-2	Inservice Testing of ASME Section XI Valves	Rev. 11
PAP-1101	Inservice Testing of Pumps and Valves	Rev. 5
CR 02-04028	RWCU Water Hammer	October, 28, 2002
CR 02-04076		
SP810-20-016	Mechanical Equipment Qualification Review File for V522F/A41AD & V522J/A41AJ Vent Valves	Rev. 2
Drawing B 022-0022-00000	Environmental Conditions for Containment Building	Rev. J
CR 02-04605		
	Surveillance Report, Control Rod Scram Time Test Results	December 11, 2002
	Marathon S Control Blade, Nuclear Impact Analysis	December 5, 2002

1R16 Operator Workarounds

	Operator Work Around Log	December 23, 2002
CR 01-3615	Operator Work Around Performance Indicator Goal Setting	October, 12, 2001

1R19 Post-Maintenance Testing

TS 3.6.1.9	Main Steam Shutoff Valves	
TS 5.5.6	Inservice Testing Program	
TAI-1102-2	Inservice Testing of ASME Section XI Valves	Rev. 11
PAP-1101	Inservice Testing of Pumps and Valves	Rev. 5
WO 02-011347-000	Stroke MSL B Shutoff MOV	October 27, 2002
CR 02-03952	RFA-Is is Acceptable to Close 1N11F0020B <20 Percent Power with 1B21F0028B Closed	November 22, 2002
WO 02-010369-000	Scram Discharge Volume First Drain	September 27, 2002
PIF 98-0125		January 22, 1998
CR 01-2441	Reactor Feed Booster Pump A Start Failure	June 13, 2001
PIF 95-1097		May 27, 1995

CR 94-553		May 20, 1994
CR 85-129		August 24, 1985
CR 85-117		August 8, 1985
CR 02-03972	HPCS Pump Failed to Start	October 23, 2002
CR 02-03976	Cell Switch for Breaker Found Out of Adjustment	October 23, 2002
	Troubleshooting Report	October 24, 2002
PMI-0030	Maintenance of Limitorque Valve Operators	Rev. 5
SVI-C41T2001A	Standby Liquid Control A Pump and Valve Operability Test	November 7, 2002
SDM C41	Standby Liquid Control System	Rev. 8
SVI-E12-T2002	RHR B Pump and Valve Operability Test	December 12, 2002
GEI-0128	Installation and Removal of Diagnostic Test Equipment on Motor Operated Valves	Rev. 3
SDM-E12	Residual Heat Removal System	Rev. 9
WO 00-002884-000	Replace Capacitor C25 on Master Trip Unit for RHR C Suction Pressure - Low Trip	December 11, 2002

1R22 Surveillance Testing

PTI-M39-P0002	High Pressure Core Spray Pump Room Cooler Performance	Rev. 1
WO 02-003627-000	High Pressure Core Spray Pump Room Cooler Performance Testing	November 28, 2002
SDM M39	Pump Room Cooling System	Rev. 3
SVI-L51-T2000	Augmented Visual Inspection/Examination of Safety-Related Snubbers	Rev. 5
SVI-R42-T5215	Performance Test of Battery Capacity - Division 1 (Unit 1)	Rev. 6
USAR Section 8.3.2	DC Power Systems	
SVI-C41-T2001-B	Standby Liquid Control B Pump and Valve Operability Test	Rev. 3
USAR Section 9.3.5	Standby Liquid Control (SLC) System	

	Union Pump Company Vendor Manual 5715M	
CR 02-04715	Flow and Pressure Difficulties While Performing SVI-C41-T2001B	December 11, 2002
SVI-C51-T0027B	APRM B Channel Functional for 1C51-K605B	Rev. 6
<u>1R23 Temporary Modification Control</u>		
ARI-H13-P680-4	Recirc Flow Control	Rev. 5
TM 1-02-009	Temporary Modification Technical Evaluation	Rev. 0
GMI-0095	Instructions for the Use and Control of ON line Leak Sealing	Rev. 2
PAP-1402	Temporary Modification Control	Rev. 10
CR 02-04434	Leak Sealing Device Installation on Motor Feed Pump	November 21, 2002
CR 02-02334	Water Leak on the Motor Feed Pump	July 16, 2002
02-01503	10 CFR 50.59 Screen, Install Leak Seal Device on MDFP Casing's Pipe Plug	November 13, 2002
CR 02-04270	Installation of Leak Sealing Device on Motor Feed Pump Casing	November 12, 2002
<u>2OS1 Access control to Radiologically significant Areas</u>		
<u>2OS2 ALARA Planning and Controls</u>		
RWP 02-0056	ALARA Work Package, FPCC Holding Pump Room, Filter Replacement	September 4, 2002
PJE 02-0048	ALARA Post Job Evaluation for RWP 02-0056	October 15, 2002
RWP 02-0021	ALARA Work Package, Perform Work Relative to G33/G36 Outage Activities	Revision 0
PJE 02-0002	ALARA Post Job Evaluation, G33/G36 System Outage	January 16, 2002
RWP 02-0027	ALARA Work Package, Condenser Inleakage Testing	Revision 0
PJE 02-0001	Condenser Water Boxes	January 22, 2002
RWP 02-0066	ALARA Work Package, Leak Recovery/Repair	Revision 2
PJE 02-0047	ALARA Post Job Evaluation, Secure Flange Leak	October 15, 2002

RWP 02-0052	ALARA Work Package, In Leakage Testing LP Condenser 'C' Waterbox	Revision 0
PJE 02-0003	ALARA Post Job Evaluation, LP Condenser 'C' Waterbox	June 3, 2002
RWP 02-0048	ALARA Work Package, Condensate Filter Septa Remove/Replace	Revision 0
PJE 02-0004	ALARA Post Job Evaluation, Condensate Filter Septa Remove/Replace	August 12, 2002
PJE 02-052	ALARA Post Job Evaluation, Replace 1G33 F0503 Relief Valve	November 26, 2002
PJE 02-051	ALARA Post Job Evaluation, Repairs to Leaking Flange on 1G331B0001B	November 19, 2002
RWP 02-0151	IFTS Diving Activities	October 15, 2002
02-008371-000	Work Order: Fuel Transfer Equipment	October 15, 2002
467RPS2002	Dosimetry Self Assessment	August 21 through September 30, 2002
466RPS2002	Locked High Radiation Area Self Assessment Plan	June 10, 2002
PA 02-01	Radiation Protection Program Audit	February 27, 2002
P35-F018	Gamma Spectroscopy Analysis	October 17, 2002
Trend Chart	Neptunium 239 in Reactor Water	September 5 through October 10, 2002
Trend Chart	Dose Equivalent Iodine in Reactor Water	December 23, 2001 through October 13, 2002
HPI-D0004	Surveillance of High Radiation Area Barricades	Revision 2
PAP-0123	Control of Locked High Radiation Areas	Revision 6
HPI-D0004	Locked High Radiation Area Barricade Operational Surveillance	August 27, 2002
HPI-D0004	Locked High Radiation Area Barricade Operational Surveillance	August 29, 2002
HPI-D0004	High Radiation Area Barricade Surveillance	August 5 through October 5, 2002

FTI-A0017	Non-Special Nuclear Material Pool Inventory Mechanism	Revision 0
FTI-A0017	Pool Inventory Log	Revision 0
	Reactor Coolant System Dose Equivalent Iodine	June 2001 through September 2002
RPI-0504	Radiologically Restricted Area Diving Program	Revision 2
02-03113	G41 Post Filter Removal	September 5, 2002
02-03581	AMP 100 Survey Meter Failed While In Use	October 1, 2002
02-03612	Upper IFTS Pool Dose Rates Relative to Debris in Pool	October 2, 2002
02-03652	Failed Meter	October 4, 2002
02-03662	Meter Failed During Survey	October 6, 2002
02-03669	RP Follow Up Items From CNRB Meeting	October 6, 2002
02-03835	Helmet Leak While Diving in Lower IFTS Pool	October 15, 2002
02-03826	Radiation Dose Reduction Efforts Failing	October 15, 2002
02-03899	Orange Tools Found Outside of Posted Area	October 17, 2002
02-04135	Missing Access Control Records In HIS-20	November 4, 2002
02-04140	RWCU Leak Degrading Containment Atmosphere	November 4, 2002
02-04250	ALARA Assessment Of The Work In The RWCU Heat Exchanger Room	November 11, 2002
02-04336	Inadequate Use Of All Available ALARA Tools	November 14, 2002
02-04429	Radiation Area Discovered Locked In Radwaste	November 21, 2002
02-04479	Escorted Radiation Workers Not Issued TLD	November 25, 2002
02-04497	PACP Gamma 60 Alarm	November 25, 2002
02-04574	Contamination Found On Chair in Radwaste Control Room	December 4, 2002
02-04567	Operator Had A Dose Rate Alarm When Entering RRA	December 4, 2002
02-03847	Potential Noncompliance With PAP-0114, Storage of Radioactive Material In The Fuel Pool	October 15, 2002

02-02134	Increased Dose Rates Around Septa Tube Box Area On T647	June 28, 2002
02-02479	Cobalt-60 Activity Detected In WARF Air Sample	July 29, 2002
02-00697	LHRA Door Lock Latching Mechanism Failed	March 10, 2002
02-00811	Engineering Controls Not Adequate During Grinding 1G33 Drain Lines	March 18, 2002
02-01007	HIS-20 Database Indicates No TLDs Issued For Individual When They Were	April 3, 2002
02-01201	Radioactive Material Found In Excess Of Posting Limits	April 22, 2002
02-01267	Increase In Discrete particles Detected During January 2002	April 26, 2002
02-01462	High Radiation Series Barricade List Is Incorrect	May 14, 2002
02-01689	Maintenance Use Of Improper RWP For HCU Work	May 30, 2002
02-01792	Particle Discovered On Visitor Exiting The RRA	June 7, 2002
02-01896	LHRA Door Opened When Challenged	June 14, 2002
02-02244	RP Individual Signed Onto Wrong RWP	July 9, 2002
02-02697	Rad Workers Not Notifying RP Dosimetry When Working At Another Site	August 12, 2002
02-03213	Increased Contamination Levels On Refueling Floor	September 11, 2002
02-00177	Operator Entered RRA With His Personal Dosimeter Not Activated	January 18, 2002
02-00786	Personnel Entry Into HRA Without Radiological Brief	March 18, 2002

2OS3 Radiological Instrumentation

PNPP 9854	Gamma 60 Calibration Record	November 15, 2002
PNPP 9854	Gamma 60 Calibration Record	November 15, 2002
PNPP 8031	PCM-1B Calibration Record	April 22, 2002
PNPP 8031	PCM-1B Calibration Record	June 18, 2002

PNPP 10104	ABACOS 2000 Whole Body Counter Calibration Record	August 9, 2002
	Nuclide Libraries For The ABACOS 2000 System	October 30, 2002
	Nuclide Libraries For The ABACOS 2000 System	October 17, 2002
PNPP 6885	Portable Ion Chamber Instrument Calibration Record	October 14, 2002
PNPP 7268	Teletector 6112B Calibration Record	October 26, 2002
PNPP 10141	AMP-100 Calibration Record	October 18, 2002

4OA1 Performance Indicator Verification

NEI 99-02	Regulatory Assessment Performance Indicator	Rev. 2
Logs	Plant Narrative Logs	April 1-September 30 2002
Logs	Monthly Safety System Unavailability Logs	April 1-September 30 2002
CR 02-02728	Alert Range Data Obtained During RHR A SVI E12T2001 Test	August 13, 2002
SVI-E12-T2001	RHR A Pump and Valve Operability Test	Rev. 11

4OA2 Identification and Resolution of Problems

CR 02-00284	Review of NRC Information Notice 2002-06 and 12/28/01 Pilgrim RPV Event	January 29, 2002
ARI-H13-P601-22	CRD Pump Auto Trip	Rev. 3
CR 02-00229	NRC notice #2002-05, FME in SLC Tanks	January 23, 2002
CHI-0004	System Chemical Treatment	Rev. 2
CR 02-02409	NRC Info Notice 2002-22 Degraded Bearing Surfaces In GM/EMD Diesel Generators	July 22, 2002
CR 01-3483	OE SER 5-01 4-KV Breaker Failure, Switchgear Fire, Main Turbine Generator Damage	September 28, 2001
	Operating Experience Log	
CR 02-01253-01	OE NRC IEN 2002-014 Ensuring Capability to Evacuate From Owner Controlled Area	April 25, 2002

	Emergency Preparedness and Site Evacuation Information	
NOP-WM-4001	Foreign Material Exclusion	Rev. 0
	Material Accountability Control Log - Health Physics Desk	December 16, 2002
	Material Accountability Control Log - Lower Containment Hatch	December 16, 2002
	Material Accountability Control Log - Upper Containment Hatch	December 16, 2002
	Badge Access Transaction Report for Lower Containment Hatch for period December 9 through December 10, 2002	Report Run December 16, 2002
CR 01-3802	FME Program Self Assessment - "Area For Improvement"	October 31, 2001
CR 01-3804	FME Program Self Assessment - "Area For Concern"	October 31, 2001
CR 01-3808	FME Program Self Assessment - "Area For Concern"	October 31, 2001
CR 01-3810	FME Program Self Assessment - "Area For Improvement"	October 31, 2001
CR 02-2057	FME Performance Indicator	June 26, 2002
CR 02-2066	INPO 2002 AFI EQ. 1-3	June 26, 2002
CR 02-2067	INPO 2002 AFI MA. 1-2	June 26, 2002
CR 02-2068	INPO 2002 SOER 95-01 Rec. #2	June 26, 2002

LIST OF INFORMATION REQUESTED

The following information is needed to be available onsite November 4, 2002, to support the biennial "Heat Sink Performance" inspection, Procedure 711111.07. Please provide for the following heat exchangers (HXs) Division 1 (Loop A) Emergency Closed Cooling Water (P-42) System Heat Exchanger, and Division 2 (Loop B) Residual Heat Removal Heat Exchanger):

1. Copy of the two most recently completed tests confirming thermal performance of each HX. Include documentation and procedures that identify the types, accuracy, and location of any special instrumentation used for these tests. (E.g., high accuracy ultrasonic flow instruments or temperature instruments). Include calibration records for the instruments used during these tests. Include drawings showing the piping configurations and flowpaths for normal operation and testing for the HXs. Also indicate where the instruments used for the tests were located. Describe the measures to ensure proper fluid mixing for temperature considerations.
2. Copy of the evaluations of data for the two most recent completed tests confirming the thermal performance of each HX.
3. Copy of the calculation which establishes the limiting (maximum) design basis heat load which is required to be removed by each of these HXs.
4. Copy of the calculation which correlates surveillance testing results from these HXs with design basis heat removal capability (e.g., basis for surveillance test acceptance criteria).
5. The clean and inspection maintenance schedule for each HX. For the last two clean and inspection activities completed on each HX, provide a copy of the document describing the inspection results. Provide HX performance trending data tracked for each HX.
6. Provide a copy of the document which identified the current number of tubes in service for each heat exchanger and the supporting calculation which establishes the maximum number of tubes which can be plugged in each HX. Provide a copy of the document establishing the repair criteria (plugging limit) for degraded tubes which are identified in each HX.
7. Copy of the as-built HX specification sheets. Also provide the design specification and heat exchanger data sheets for each HX. Copy of the vendor and component drawings for each HX. Copy of the vendor and operating manuals for each HX.
8. Provide a list of issues with a short description documented in your corrective action system associated with these HXs in the past 3 years. Provide a list of issues with a short description documented in your corrective action system associated with the ultimate heat sink, especially any loss of heat sink events and any events or conditions that could cause a loss of ultimate heat sink.

If the information requested above will not be available, please contact Gerard O'Dwyer as soon as possible at (630) 829-9624 or E-mail - gfo@NRC.gov.