July 28, 2003

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

SUBJECT: PERRY NUCLEAR POWER PLANT
NRC INTEGRATED INSPECTION REPORT 50-440/03-04

Dear Mr. Kanda:

On June 30, 2003, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Perry Nuclear Power Plant. The enclosed report documents the inspection findings which were discussed on June 27, 2003, with Mr. T. Rausch, General Manager, and other members of your staff.

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

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

If you contest the subject or severity of 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, NRC has issued five Orders and several threat advisories to licensees of commercial power reactors to strengthen licensee capabilities, improve security force readiness, and enhance controls over access authorization. In addition to applicable baseline inspections, the NRC issued Temporary Instruction 2515/148, "Inspection of Nuclear Reactor Safeguards Interim Compensatory Measures," and its subsequent revision, to audit and inspect licensee implementation of the interim compensatory measures required by order. Phase 1 of TI 2515/148 was completed at all commercial nuclear power plants during

calender year 2002 and the remaining inspection activities for Perry are scheduled for completion in 2003. The NRC will continue to monitor overall safeguards and security controls at Perry.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at **http://www.nrc.gov/reading-rm/adams.html** (the Public Electronic Reading Room).

Sincerely,

/RA/

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

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

Enclosure: Inspection Report 50-440/2003004
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-440
License No:	NPF-58
Report No:	50-440/03-04
Licensee:	FirstEnergy Nuclear Operating Company (FENOC)
Facility:	Perry Nuclear Power Plant, Unit 1
Location:	P.O. Box 97 A200 Perry, OH 44081
Dates:	April 1 through June 30, 2003
Inspectors:	R. Powell, Senior Resident Inspector J. Ellegood, Resident Inspector M. Holmberg, Reactor Inspector T. Ploski, Emergency Preparedness Inspector J. E. House, Senior Radiation Specialist D. W. Nelson, Radiation Specialist P. Lee, Health Physicist
Approved by:	Mark A. Ring, Chief Branch 1 Division of Reactor Projects

Enclosure

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ATTACHMENT: Supplemental Information

Enclosure

SUMMARY OF FINDINGS

IR 05000440/03-04; FirstEnergy Nuclear Operating Company; 04/01/03 - 06/30/03; Perry Nuclear Power Plant; Access Control to Radiologically Significant Areas, Other Activities.

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

A. NRC-Identified and Self-Revealed Findings

Cornerstone: Mitigating Systems

- Green. A self-revealed violation of Technical Specification 5.4 occurred on May 7, 2003, when the licensed operator "at the controls" left the "at-the-controls" and operations area of the control room without using the appropriate procedure for shift and relief turnover. During the individual's absence, a control room annunciator was received. When the alarm was not acknowledged, two licensed operators who were also in the "at-the-controls" area (conducting an emergency diesel generator (EDG) surveillance run) observed the "at-the-controls" operator's absence and responded to the annunciator. Operations management was not made aware of the personnel error until approximately 16.5 hours later at which time a condition report was generated and the individual was relieved of licensed operator duties pending incident review and remediation.

  The finding was more than minor because it could reasonably be viewed as a precursor to a significant event. In other circumstances, a second licensed operator may not have been in the control room. Additionally, the failure to promptly identify a performance deficiency was not consistent with site expectations. The finding was of very low safety significance because the annunciator was expected due to inclined fuel transfer system operation and the licensed operator was out of the "at-the-controls" area for only approximately 20 seconds. (Section 4OA5)

Cornerstone: Occupational Radiation Safety

- Green. A finding of very low safety significance was self-revealed during work in the reactor water clean up (RWCU) heat exchanger (HX) room when the licensee failed to provide continuous radiological surveillance (electronic telemetry dosimetry) as required by Technical Specification 5.7.4 for a worker in an area where a major portion of the body could receive in 1 hour a dose >3000 mrem.

The finding was more than minor because the failure to provide continuous monitoring in a high radiation area resulted in an individual worker's unplanned, unintended dose, and resulted from actions or conditions contrary to licensee Technical Specifications. This finding was associated with the "Programs and Processes" and "Human Performance" attributes of the Occupational Radiation Safety Cornerstone and affected the cornerstone objective of ensuring the adequate protection of worker health and safety from exposure to radiation. The finding was of very low safety significance because it did not involve as-low-as-is-reasonably-achievable (ALARA) planning or work controls, there was no overexposure or a substantial potential for an overexposure, and the ability to assess dose was not compromised. This was a violation of Technical Specification 5.7.4. (Section 2OS1)

- Green. A finding of very low safety significance was self-revealed during work in the RWCU HX room when the licensee failed to place dosimetry to properly reflect the highest whole body dose for the working position as required by licensee procedure HPI-C0005, "Radiation Work Permit Surveys and Surveillances."

  The finding was more than minor because the failure to place dosimetry to properly reflect the highest whole body dose for the working position resulted in an individual worker's unplanned, unintended dose and resulted from actions or conditions contrary to licensee procedures. This finding was associated with the "Programs and Processes" attribute of the Occupational Radiation Safety Cornerstone and affected the cornerstone objective of ensuring the adequate protection of worker health and safety from exposure to radiation. The finding was of very low safety significance because it did not involve as-low-as-is-reasonably-achievable (ALARA) planning or work controls, there was no overexposure or a substantial potential for an overexposure, and the ability to assess dose was not compromised. This was a violation of licensee procedure HPI-C0005. (Section 2OS1)

- Green. A finding of very low safety significance was NRC-identified during work in the drywell when the licensee failed to properly control access to a locked high radiation area (LHRA), as required by Technical Specification 5.7.2 and 5.7.3.

  The finding was more than minor because the failure to adequately control access to Technical Specification LHRAs had an impact on radiological safety (external dose) and if not corrected would become a more significant concern given the elevated dose rates that occur in accessible areas during refueling outages. The finding was associated with the "Programs and Processes" attribute of the Occupational Radiation Safety Cornerstone and affected the cornerstone objective of ensuring the adequate protection of worker health and safety from exposure to radiation. The finding was of very low safety significance because it did not involve ALARA planning or work controls, there was no overexposure or a substantial potential for an overexposure, and the ability to assess dose was not compromised. This was a violation of Technical Specification 5.7.3. (Section 2OS1)

B. Licensee-Identified Violations

A violation of very low safety 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 and corrective action tracking number are listed in Section 4OA7.

REPORT DETAILS

Summary of Plant Status

The plant began the inspection period at 82 percent power in coastdown to refueling outage 9 (RFO9). On April 4, the licensee commenced lowering reactor power for RFO9. After reducing power to approximately 20 percent, the licensee inserted a manual scram at 2:20 a.m. on April 5. The plant reached Mode 4 later that same day. The plant entered Mode 5 at 10:15 p.m. on April 7 when the first reactor pressure vessel stud was detensioned. Following completion of outage activities, the reactor achieved criticality on May 28, but was shutdown later that same day to repair a leak in the steam bypass and pressure control system. Following repairs, the unit achieved criticality on May 29, entered Mode 1 on May 30, synchronized to the grid on May 31, and reached 100 percent power on June 4. The unit remained at or near 100 percent power for the remainder of the assessment period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather (71111.01)

.1 High Wind/Tornado Preparations

a. Inspection Scope

The inspectors reviewed licensee Off-Normal Instruction (ONI) ZZZ-1, "Tornado or High Winds," and discussed severe weather preparations and response with operations personnel. The inspectors also observed the licensee's response to the severe thunderstorm warning for Lake County which was posted on April 4. The inspectors verified that the ONI was entered, that immediate actions were performed, and that site supervision was appropriately notified as required by the procedure. Additionally, during the week of May 6, the inspectors walked down a sample of credited tornado depressurization barriers to review position and material condition. Finally, the inspectors reviewed the licensee's entries into ONI-ZZZ-1 against the National Climatic Data Center's log of severe weather events for Lake County, Ohio from January 1, 2002, through February 28, 2003.

b. Findings

No findings of significance were identified.

.2 Hot Weather Preparations

a. Inspection Scope

During the week of June 2, the inspectors reviewed the facility design and the licensee's procedures to verify that the EDGs would remain functional when challenged by adverse weather conditions, such as high temperatures. Additionally, the inspectors reviewed

the licensee's 2002 summer seasonal readiness critique to verify recommendations and corrective actions were implemented in a timely manner. Finally, the inspectors walked down selected areas to evaluate plant equipment susceptible to high temperatures.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04)

a. Inspection Scope

The inspectors conducted partial walkdowns of the system trains listed below while the opposite train of equipment was out-of-service, to verify that the systems were correctly aligned to perform their design safety function. 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 inspectors reviewed the following three systems:

- the Division 1 EDG while the Division 2 EDG was inoperable for planned maintenance on April 7;
- the high pressure core spray (HPCS) system, including the Division 3 EDG, on April 29, while HPCS was the designated defense in depth system; and
- the Division 3 EDG on June 16, while HPCS was identified as risk significant due to unavailability of the motor feed pump.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Walk-down of Selected Fire Zones/Areas

a. Inspection Scope

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

- Fire Areas CC-1a and CC-1b, Emergency Closed Cooling Pumps and HXs;
- Fire Area 1RB-1b, Unit 1 Reactor Building - El. 599'-9";
- Fire Area 1RB-1b, Unit 1 Reactor Building - El. 620'-6";
- Fire Area 1RB-1b, Unit 1 Reactor Building - El. 664'-7";
- Fire Zone 1AB-1b; Residual Heat Removal (RHR) A Pump Room;
- Fire Area 1CC-6, Unit 1 Control Complex Floor 6; and
- Heater Bay, motor feed pump and turbine driven feed pump areas.

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 the emergency service water (ESW) pump house on June 9. 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 debriefing to evaluate the licensee's ability to self-critique fire fighting performance.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.09)

a. Inspection Scope

The inspectors reviewed the licensee’s analysis of their emergency core cooling system (ECCS) room coolers to ensure the licensee adequately accounted for differences between measured performance and expected conditions during accidents. The inspectors also reviewed the licensee’s inspection frequency to verify it was sufficiently frequent to detect degradation of the room coolers. Finally, the inspectors performed a walkdown of the room coolers to verify they were in good condition and filters were not fouled.

b. Findings

No findings of significance were identified

1R08 Inservice Inspection Activities (71111.08)

a. Inspection Scope

The inspectors evaluated the implementation of the licensee's inservice inspection program for monitoring degradation of the reactor coolant system boundary and risk significant piping system boundaries, based on review of records and in-process observation of nondestructive examinations.

On April 22, the inspectors observed:

- Ultrasonic (UT) examination of a 10 inch diameter pipe to valve weld 1E51-0124 in the reactor core isolation cooling (RCIC) system in the reactor building drywell; and,
- Dye penetrant examination of 2 inch diameter drain system welds 1N22-0031, 0031A, 0031B, 0031C, 0141 and 0142 in the reactor building drywell.

From April 14 through April 16, the inspectors reviewed:

- Repair and replacement records for the modification of the RHR system to eliminate the steam condensing mode of operation; and
- Nondestructive examination reports with Code recordable indications identified during previous UT examinations of the feedwater nozzle-to-safe end welds.

The inspectors reviewed records and activities observed for conformance with requirements in the American Society of Mechanical Engineers (ASME) Code, Section III, Section V, Section IX and Section XI.

The inspectors' review of records occurred on-site in Maintenance Building 100 located within the site protected area.

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 and shutdown risk were adequate. The inspectors also reviewed licensee actions to address increased on-line

and shutdown 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 and shutdown risk was increased due to maintenance on risk-significant structures, systems, and components. The following specific assessments were reviewed:

- the maintenance risk assessment for the week of March 31, which included modification of the emergency closed cooling water (ECCW) system and associated ECCW train "A" inoperability;
- the daily shutdown safety risk assessments for the week of April 7, which included a planned entry into an "Orange" risk category due to use of a freeze seal as a reactor coolant system pressure boundary during replacement of Valve EP (equipment piece) - 102 associated with hydraulic control unit 22-19;
- the daily shutdown safety risk assessments for the week of April 14, during which substantial schedule revisions were required due to a 48-hour stop-work order applied to all work in contaminated areas, high radiation areas (HRAs) and LHRAs;
- the daily shutdown safety risk assessments for the week of May 12, which included emergent ESW 'A' work; and
- the daily shutdown safety risk assessments for the week of May 19, which included a planned entry into a yellow risk configuration due to time-to-boil being less than 24 hours and emergent inboard main steam isolation valve 'C' work.

b. Findings

No findings of significance were identified.

1R14 Operator Performance During Non-Routine Plant Evolutions and Events (71111.14)

a. Inspection Scope

As discussed in Section 4OA3, on April 24, the licensee received unexpected fuel handling building (FHB) radiation and evacuation alarms after an irradiated fuel rod was inadvertently damaged during inspection activities. The inspectors reviewed and observed licensee recovery plans including problem solving team meetings, infrequently performed test and evolution briefings, and the rechanneling and movement of the damaged fuel bundle on April 26. Specifically, the inspectors verified the licensee's recovery plans were consistent with operating instructions, ONIs, and emergency plan requirements; verified the infrequently performed test and evolution briefings met criteria specified in Plant Administrative Procedure (PAP)-1121, "Conduct of Infrequently Performed Tests of Evolutions," Rev. 1; and verified the actual work met licensee standards and expectations with respect to procedure usage, crew communications, and work control.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors selected condition reports (CRs) related to potential operability issues for risk significant components and systems. These CRs were evaluated to determine whether the operability of the components and systems was justified. The inspectors compared the operability and design criteria in the appropriate sections of the Technical Specifications (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:

- an engineering evaluation of the consequences of discrepancies in ECCS room cooler calculations on ECCS room equipment;
- an operability determination associated with potential vortexing at the fuel oil transfer system eductor suction nozzle which would prevent adequate transfer of fuel oil from the EDG fuel oil storage tanks; and
- an operability evaluation concerning an adverse trend in RCIC lube oil sample results.

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (OWAs) (71111.16)

.1 Cumulative Review

a. Inspection Scope

The inspectors evaluated the overall effectiveness of the licensee OWA program. The inspectors reviewed the licensee's CRs in order to determine if issues identified in the corrective action program were also reviewed as part of and captured in the licensee's OWA program. Additionally, the inspectors discussed the effect of active OWAs with operators and operations management. Finally, the inspectors reviewed OWAs closed during RFO9 to verify the adverse conditions were corrected as scheduled and to assess the effectiveness of the corrective actions.

b. Findings

No findings of significance were identified.

.2 Lost Control Rod Position Indication

a. Inspection Scope

The inspectors observed the operator's response to a control rod with intermittent valid position indication. As a result of the problem, the operators lost the ability to move control rods. The inspectors observed licensee actions to bypass the affected control rods, communicate the condition to shift personnel and restore the ability to move controls. The inspectors verified the actions were consistent with procedural guidance and technical specification requirements.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications (71111.17)

a. Inspection Scope

The inspectors reviewed Engineering Change Package 02-0213A which implemented a plant modification to permanently eliminate the interconnection between the "A" loop of ECCW and the nuclear closed cooling system. The inspectors reviewed associated safety evaluations and design criteria to evaluate the impact of the modification on the design basis, licensing basis, and interfacing systems. The inspection included observation of installation activities and discussions with key project personnel. Additionally, the inspectors reviewed the final system configuration against revised system drawings and control room panel depiction.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors evaluated the following post-maintenance testing activities for risk significant systems to assess the following (as applicable): the effect of testing on the plant had been adequately addressed; testing was adequate for the maintenance performed; acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate; tests were performed as written; and equipment was returned to its operational status following testing. The inspectors evaluated the activities against TSs, the USAR, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications. In addition, the inspectors reviewed CRs associated with 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:

- ESW B testing following pump replacement conducted April 22 and 23;

- source range monitor 'C' testing following repair on May 8;
- Division 2 Diesel Generator (DG) following repair of a water jacket leak on May 14;
- control rod speed adjustments performed May 19, for selected rods following Control Rod Drive Mechanism (CRDM) replacement; and
- control room emergency recirculation charcoal bed bypass testing on June 19 following charcoal sample gathering.

b. Findings

No findings of significance were identified.

1R20 Refueling and Outage Activities (71111.20)

a. Inspection Scope

The inspectors observed work activities associated with RFO9, which began on April 5, and continued through May 31. The inspectors assessed the adequacy of outage-related activities, including implementation of risk management, preparation of contingency plans for loss of key safety functions, conformance to approved site procedures, and compliance with TS requirements. The following major activities were observed or performed:

- On April 4 and 5, the inspectors observed the licensee's shutdown and cooldown of the reactor. The inspectors observed shift briefings, operator performance, shift management coordination of plant activities, and conformance with TS requirements including cooldown limitations.

- During the weeks of April 7 and 14, the inspectors reviewed the licensee's contingency plans for containment and fueling handling building (FHB) closure. The inspectors reviewed the licensee's procedures and work packages to ensure adequacy of the contingency plans. In addition, the inspectors performed walkdowns of containment airlocks and the FHB to verify that the licensee could implement their contingency plans in a timely manner. In addition, the inspectors interviewed members of the licensee's staff responsible for containment closure to assess their understanding of the contingency plan requirements.

- The inspectors reviewed the licensee's use of temporary reactor vessel level and temperature instrumentation throughout the RFO. The inspectors periodically verified agreement of redundant level and temperature indications by direct observation.

- The inspectors observed the licensee's control of reactor vessel level during plant shutdown, cooldown, and subsequent reactor pressure vessel disassembly.

- The inspectors monitored the licensee's decay heat removal processes throughout the outage. The inspectors observed the licensee's demonstration of the fuel pool cooling and cleanup system's ability to perform as a decay heat removal system which was conducted during the week of April 14.
- The inspectors observed the licensee's refueling activities, including fuel

handling and sipping activities to detect fuel assembly leakage.

- The inspectors evaluated the performance of the fuel pool cooling system to maintain pool temperature within specification during the weeks of April 28 and May 5. In addition, the inspectors verified planned work activities did not challenge pool cooling capability.

- During the week of April 28, the inspectors evaluated clearance activities to ensure tags were properly hung and plant equipment was aligned to support clearance activities.

- During the weeks of May 12 and 19, the inspectors reviewed licensee restart readiness activities to verify emergent issues were appropriately identified as restart restraints and that restart restraint issues were appropriately resolved prior to mode changes.

- The inspectors conducted drywell and containment closeout tours on May 26 and 27 to ensure the material condition supported plant restart.

- On May 28, the inspectors observed reactor startup and a subsequent shutdown for repair of electro-hydraulic control system leaks. The inspectors observed shift briefings, operator performance, shift management coordination of plant activities and conformance with TS requirements including pressure/temperature limitations.

- Finally, the inspectors observed selected evolutions during power ascension activities conducted May 29 through June 4.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed surveillance testing or reviewed test data for risk-significant systems or components to assess compliance with TS, 10 CFR Part 50 Appendix B, and licensee procedure requirements. The testing was also evaluated for consistency with the USAR. The inspectors verified that the testing demonstrated that the systems were ready to perform their intended safety functions. The inspectors reviewed whether test control was properly coordinated with the control room and performed in the sequence specified in the surveillance instruction (SVI), and if test equipment was properly calibrated and installed to support the surveillance tests. The procedures reviewed are listed in the attached List of Documents Reviewed. The specific surveillance activities assessed were:

- reactor mode switch refuel position interlock testing conducted April 10;
- Division 1 loss of offsite power and loss of coolant accident testing conducted May 9 and May 10;
- testing of RCIC cooling injection test valves on May 21 and 22;
- the reactor pressure vessel hydrostatic leak test conducted May 25 and 26; and
- HPCS DG 24-hour run conducted June 4 and 5.

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed temporary power installations performed during the plant's RFO. The inspectors reviewed procedures used to install the temporary power as well as walked down the installed temporary power to verify it was installed as described in the licensee's procedures. The inspectors also performed random observations of licensee activities to verify modifications to risk significant systems to verify no temporary power installations occurred outside of the established program, and to verify routing of temporary cables conformed with site engineering drawings with respect to separation from safety related conduit and raceways.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness (EP)

1EP4 Emergency Action Level and Emergency Plan Changes (71114.04)

a. Inspection Scope

The inspectors reviewed Revisions 16 and 17 of the Perry Nuclear Power Plant's Emergency Plan to determine whether changes identified in Revisions 16 and 17 reduced the effectiveness of the licensee's emergency planning, pending on-site inspection of the implementation of these changes.

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed the simulator control room, technical support center and the operations support center during an emergency preparedness drill conducted on June 25. The inspection focused on the ability of the licensee to appropriately classify

emergency conditions, complete timely notifications, and implement appropriate protective action recommendations in accordance with approved procedures.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

.1 Review of Licensee Performance Indicators for the Occupational Exposure Cornerstone

a. Inspection Scope

The inspectors reviewed the licensee's performance indicators (PIs) to determine whether or not the conditions surrounding the PIs had been evaluated, and identified problems had been entered into the corrective action program for resolution.

b. Findings

No findings of significance were identified.

.2 Plant Walkdowns and Radiation Work Permit Reviews

a. Inspection Scope

The inspectors identified three radiologically significant work areas within radiation areas, high radiation areas and airborne radioactivity areas in the plant and reviewed work packages which included associated licensee controls and surveys of these areas to determine if radiological controls including surveys, postings and barricades were acceptable. These work areas were walked down and surveyed (using an NRC survey meter) to verify that the prescribed radiation work permit (RWP), procedures, and engineering controls were in place, that licensee surveys and postings were complete and accurate, and that air samplers were properly located.

The inspectors reviewed the RWPs and work packages used to access these and other high radiation work areas to identify the work control instructions and control barriers that had been specified. Technical Specification HRA and LHRA requirements were used as the licensee's standards for the necessary barriers. Electronic dosimeter alarm set points for both integrated dose and dose rate were evaluated for conformity with survey indications and plant policy. Workers were interviewed to verify that they were aware of the actions required when their electronic dosimeters noticeably malfunctioned or alarmed.

The inspectors reviewed the available RWPs for airborne radioactivity areas to determine if there was a potential for individual worker internal exposures of >50 mrem

committed effective dose equivalent. Barrier integrity and engineering controls performance such as high-efficiency particulate air ventilation system operation were evaluated. Work areas having a history of, or the potential for, airborne transuranics were evaluated to verify that the licensee had considered the potential for transuranic isotopes and provided appropriate worker protection. The adequacy of the licensee's internal dose assessment process for internal exposures >50 mrem committed effective dose equivalent was assessed.

b. Findings

No findings of significance were identified.

.3 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed the licensee's self-assessments, audits, Licensee Event Reports, and Special Reports related to the access control program to verify that identified problems were entered into the corrective action program for resolution. This included 15 corrective action reports related to access controls and three HRA radiological incidents when available (non-PIs identified by the licensee in HRAs <1R/hr). Staff members were interviewed and corrective action documents were reviewed to verify that follow-up activities were being conducted in an effective and timely manner commensurate with their importance to safety and risk based on the following:

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

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

The inspectors reviewed licensee documentation packages for all PI events occurring since the last inspection to determine if any of these PI events involved dose rates >25 R/hr at 30 cm or >500 R/hr at 1 meter. Barriers were evaluated for failure and to determine if there were any barriers left to prevent personnel access. Unintended exposures >100 mrem total effective dose equivalent (or >5 rem shallow dose equivalent or >1.5 rem lens dose equivalent) were evaluated to determine if there were any regulatory overexposures or if there was a substantial potential for an overexposure.

b. Findings

No findings of significance were identified.

.4 Job-In-Progress Reviews

a. Inspection Scope

The inspectors selected three jobs being performed in radiation areas, airborne radioactivity areas, or HRAs for observation of work activities that presented the greatest radiological risk to workers. This involved work that was estimated to result in the highest collective doses, and included diving activities in the spent fuel pool, and other work areas where radiological gradients were present.

The inspectors reviewed radiological job requirements including RWP requirements and work procedure requirements, and attended ALARA job briefings. Job performance was observed with respect to these requirements to verify that radiological conditions in the work area were adequately communicated to workers through prejob briefings and postings. The inspectors also verified the adequacy of radiological controls including required radiation, contamination, and airborne surveys for system breaches; radiation protection (RP) job coverage which included audio and visual surveillance for remote job coverage; and contamination controls.

Radiological work in high radiation work areas having significant dose rate gradients was reviewed to evaluate the application of dosimetry to effectively monitor exposure to personnel and to verify that licensee controls were adequate. These work areas involved areas where the dose rate gradients were severe (diving activities and the HX room) which increased the necessity of providing multiple dosimeters and/or enhanced job controls.

b. Findings

Introduction: The inspectors identified a NCV of TS 5.7.4 having very low safety significance (Green) for failing to provide continuous radiological surveillance (electronic telemetry dosimetry) for a worker in an area where a major portion of the body could receive in 1 hour, a dose >3000 mrem. This issue was self-revealed. The inspectors also identified a NCV of Procedure HPI-C0005 having very low safety significance (Green) for failing to place dosimetry to properly to reflect the highest whole body dose for the working position. This issue was also self-revealed.

Description: On April 14, a pipe fitter (Worker A) received an unintended radiation exposure while working in the RWCU HX room. The plant was in RFO9 and the RWCU system was out of service for chemical decontamination. RP personnel were supporting work in the RWCU HX room which involved rotating the remaining three (of 16) spectacle flanges, which were located close to the HXs, as part of the chemical decontamination process. Substantial radiation dose gradients existed in the room as a result of hot spots on the HXs and associated piping. RP support personnel for this portion of the work consisted of an ALARA specialist, a lead RP technician (RPT) and a RP specialist (RPS). An Infrequently Performed Test or Evolution briefing and an ALARA briefing for the flange work were conducted. The workers were issued telemetry

dosimetry (wireless remote monitoring system) to track their dose as the licensee had determined that telemetry dosimetry would be the only method for tracking worker exposure for this job. The electronic dosimeter set-points were 1000 mrem total dose and 15000 mrem/hour dose rate. Approximately 10 workers were on the telemetry dosimetry monitoring system. A television camera was located inside the RWCU room and provided visual monitoring of the workers. However, this camera was controlled by licensee personnel on the refueling floor and not by the RP staff controlling this job. The ALARA specialist and the RPT were outside of the RWCU room and the lead RPT was stationed just inside the room. One worker (A) noted to the RP staff that his telemetry screen entry was a different color than all of the other workers. Worker A then noticed that his name was no longer on the telemetry computer screen and he so informed the RPS. He was told that his name would come back later. A short time later Worker A noted to the RP staff that his name was still not on the telemetry read out. The worker was told that his name would probably show up again when he entered the RWCU room and he was told to talk to the lead RPT about the issue. The RPS did not expect Worker A to enter the RWCU room for work because he believed that the worker would notify the lead RPT inside the RWCU room that he was having a dosimetry problem and would be replaced. Worker A did not discuss his telemetry problem with the lead RPT and entered the RWCU room with the other two workers. However, the RP staff outside of the RWCU room did not realize that all three workers entered the area. Once inside, Workers A and B were in close proximity to each other but Worker A was not at his assigned flange and was unable to locate his correct work site. After some time he returned to the entrance of the room. The third worker (C) climbed a scaffold to upper elevations of the room to work on his flange. After Worker A returned to the alcove just inside the RWCU room to ask about the location of his work area, Worker B was reaching his limit of 800 mrem for the entry and all workers were told to return to the low dose waiting area just inside of the room. Worker B told Worker A where the flange was that Worker A was to work on, and Worker B left the area. Worker C asked for his dose and was told 57 mrem by the RPT who was outside of the room acting as the LHRA gate guard. Worker A also asked for his dose and was told 57 mrem, which he questioned. He was told that his reading was low and that he could return to work. Both Workers A and C returned to work. Worker C then finished his task and exited the area. The RPS, who periodically had been observing the workers on a TV monitor that had a view of the lower area, had assumed that the worker who was showing increased dose on the telemetry (Worker C) was the same person he had seen on the monitor. When the RPS noticed that a worker was still in the area with no one now in a dose field on the telemetry screen, he told the lead RPT to remove the worker from the RWCU room. When Worker A exited the room his electronic dosimeter registered 1834 mrem. Worker A was in a significant radiological gradient at his assigned work site due to hot spots on the HX and on piping close to his work area. The licensee's dose reconstruction determined that the portion of the body that was in the highest radiation field was the worker's head. However, the licensee did not place the worker's dosimetry on his head, but placed the dosimetry on the worker's chest, which was the licensee's standard practice.

Analysis 1: The inspectors determined that failing to provide continuous surveillance for workers in a HRA, where a major part of the body could receive in 1 hour a dose >3000 mrem, was a performance deficiency warranting a significance evaluation. The inspectors concluded that the finding was greater than minor in accordance with IMC 0612, "Power Reactor Inspection Reports", Appendix B, "Issue Disposition

Screening", issued on June 20, 2003. The issue is more than minor because the failure to provide continuous monitoring in HRAs resulted in an individual worker's unplanned, unintended dose, and resulted from actions or conditions contrary to licensee TSs. The inspectors determined that the issue was associated with the "Programs and Processes" and "Human Performance" attributes of the Occupational Radiation Safety Cornerstone, and affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operations.

The inspectors completed a significance determination of this issue using IMC 0609, "Significance Determination Process (SDP)", dated March 21, 2003, Appendix C, "Occupational Radiation Safety Significance Determination Process", dated June 24, 2003. The inspectors determined that the finding did not involve ALARA planning or work controls, there was no overexposure or a substantial potential for an overexposure, and the ability to assess dose was not compromised. The inspectors determined that there was no substantial potential for an overexposure because: (1) a barrier analysis indicated that the worker would have been removed from the RWCU room before a regulatory overexposure would have occurred; and, (2) the licensee's dose calculations, based on a time and motion study which provided a realistic assessment of the worker's dose, showed that the individual did not receive an overexposure and that a minor change in the circumstances would not have resulted in an overexposure. Consequently, the inspectors concluded that the SDP assessment for this finding was of very low safety significance (Green).

Enforcement 1: TS 5.7.4 requires, in part, that for individual areas accessible to personnel such that a major portion of the body could receive in 1 hour, a dose >3000 mrem, entry shall require an approved RWP which will specify dose rate levels in the immediate work area and the maximum allowable stay time for individuals in that area. In lieu of the stay time specification of the RWP, continuous surveillance, direct or remote, such as use of closed circuit TV cameras, may be made by personnel qualified in RP procedures to provide positive exposure control over activities within the areas. On April 14, the licensee used remote telemetry dosimetry as the only means of monitoring worker dose in the RWCU room. The telemetry system for one worker failed and the licensee was unable to monitor that worker's radiological exposure. However, since the licensee conducted an immediate general work stand down to reevaluate RP job coverage, and documented this issue in its corrective action program (Root Cause Analysis Report: Unintended Exposure for RWCU Heat Exchanger Work; Condition Reports 03-02073, 03-02086, 03-02216, 03-03013, 03-02761, and 03-02255), and because the violation is of very low safety significance, the violation is being treated as a NCV (**NCV 50-440/03-04-01**).

Analysis 2: The inspectors determined that failing to place the worker's dosimetry on that portion of the body that would be subjected to the highest dose rates was a performance deficiency warranting a significance evaluation. The inspectors concluded that the finding was greater than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening," issued on June 20, 2003. The issue is more than minor because the failure to place the dosimetry on that portion of the worker's body that was in the highest dose rate resulted in an individual worker's unplanned, unintended dose, and resulted from actions or conditions contrary to licensee procedures. The inspectors determined that the issue was

associated with the "Programs and Processes" attribute of the Occupational Radiation Safety Cornerstone and affected the cornerstone objective of ensuring the adequate protection of worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operations.

The inspectors completed a significance determination of this issue using IMC 0609, "Significance Determination Process", dated March 21, 2003, Appendix C, "Occupational Radiation Safety Significance Determination Process", dated June 24, 2003. The inspectors determined that the finding did not involve ALARA planning or work controls, there was no overexposure or a substantial potential for an overexposure, and the ability to assess dose was not compromised. The inspectors determined that there was no substantial potential for an overexposure because: (1) a barrier analysis indicated that the worker would have been removed from the RWCU room before a regulatory overexposure would have occurred; and, (2) the licensee's dose calculations, based on a time and motion study which provided a realistic assessment of the worker's dose, showed that the individual did not receive an overexposure and that a minor change in the circumstances would not have resulted in a substantial potential for an overexposure. Consequently, the inspectors concluded that the SDP assessment for this finding was of very low safety significance (Green).

Enforcement 2: TS 5.4.1 required, in part, that written procedures/instructions shall be established, implemented, and maintained covering the following activities recommended in Regulatory Guide 1.33, Revision 2, Appendix A, which included procedures for the RP program implementation. Procedure HPI-C0005, "Radiation Work Permit Surveys and Surveillances", Section 6.5.1.3.a, required that dosimetry is placed properly to reflect the highest whole body dose for the working position. On April 14, the licensee sent a worker into the RWCU HX room, in which significant dose rate gradients existed, without placing the dosimetry on the area of the body that would have been exposed to the highest dose rates. As a result of this, the worker's dosimeters did not accurately reflect the worker's actual dose. However, since the licensee conducted an immediate general work stand down to reevaluate RP job coverage, and documented this issue in its corrective action program (TLD/MG 25 percent Dose Discrepancy Evaluation for CR 03-02216 RWCU HX Room; Condition Reports 03-02216 and 03-02073) and because the violation is of very low safety significance, the violation is being treated as a NCV (**NCV 50-440/03-04-02**).

.5 High Risk Significant, High Dose Rate HRA and Very High Radiation Area (VHRA) Controls

a. Inspection Scope

The inspectors reviewed the licensee's performance indicators for high risk, high dose rate and HRAs, and for VHRAs to verify that workers were adequately protected from radiological overexposure. Discussions were held with the RP Manager concerning high dose rate/HRA and VHRA controls and procedures, including procedural changes that had occurred since the last inspection, in order to verify that any procedure modifications did not substantially reduce the effectiveness and level of worker protection.

The inspectors discussed with RP supervisors the controls that were in place for special areas that had the potential to become VHRAs during certain plant operations, to determine if these plant operations (fuel transfer operations) required communication beforehand with the RP group, so as to allow corresponding timely actions to properly post and control the radiation hazards. During plant walkdowns, the posting and locking of entrances to high dose rate HRAs, and VHRAs were reviewed for adequacy.

b. Findings

Introduction: An NRC-identified Green finding and an associated NCV were identified for the failure to properly control access to a LHRA, as required by TS 5.7.2.

Description: On April 9, a radiation worker received an unexpected dose rate alarm while in an upper level of the drywell near the safety relief valves while performing a walkdown in preparation for safety relief valve work. The worker received a dose rate alarm of 328 mrem/hr with the alarm setpoint at 300 mrem/hr. The licensee had not fully surveyed the area of the drywell that the worker was in. Follow-up surveys revealed an area near nozzle N6A on an E12 line that was reading 6 rem/hr on contact and 2.5 rem/hr at 30 cm. Upon discovery, the area was guarded and the licensee verified that no one was in the immediate area. This area was then posted as a LHRA, was provided with a flashing light and a boundary.

Analysis: The inspectors determined that failing to adequately control access to a TS LHRA was a performance deficiency warranting a significance evaluation. The inspectors concluded that the finding was greater than minor in accordance with IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening," issued on June 20, 2003. The issue is more than minor because the failure to adequately control access to a TS LHRA had an impact on radiological safety (external dose) and if not corrected would become a more significant concern given the elevated dose rates that occur in accessible areas during RFOs. The inspectors determined that the issue was associated with the "Programs and Processes" attribute of the Occupational Radiation Safety Cornerstone and affected the cornerstone objective of ensuring the adequate protection of worker health and safety from exposure to radiation from radioactive material during routine civilian nuclear reactor operations.

The inspectors completed a significance determination of this issue using IMC 0609, "Significance Determination Process", dated March 24, 2003, Appendix C "Occupational Radiation Safety Significance Determination Process", dated June 24, 2003. The inspectors determined that the finding did not involve ALARA planning or work controls, there was no overexposure or a substantial potential for an overexposure, and the ability to assess dose was not compromised. Consequently, the inspectors concluded that the SDP assessment for this finding was of very low safety significance (Green).

Enforcement: TS 5.7.2 requires, in part, that areas accessible to personnel with radiation levels such that a major portion of the body could receive in1 hour a dose $\geq$1000 mrem, shall be provided with locked or continuously guarded doors to prevent unauthorized entry. TS 5.7.3 provides that individual areas where no enclosure exists for the purpose of locking, and where no enclosure can reasonably be constructed around the individual areas, need not be controlled by a locked door or gate, but shall

be barricaded, posted, and a clearly visible flashing light shall be activated at the area as a warning device.

Until April 9, the inspectors determined that the licensee had failed to adequately control access to the upper area of the drywell. However, since the licensee immediately posted the area, established a boundary and flashing light, and documented this issue in its corrective action program (Condition Report 03-01877), and because the violation is of very low safety significance, the violation is being treated as a NCV. (**NCV 50-440/03-04-03**).

.6 Radiation Worker Performance

a. Inspection Scope

During job performance observations, the inspectors evaluated radiation worker performance with respect to stated RP work requirements and evaluated whether workers were aware of the significant radiological conditions in their workplace, the RWP controls and limits in place, and that their performance accounted for the level of radiological hazards present.

Radiological problem reports, which found that the cause of the event was due to radiation worker errors, were reviewed to determine if there was an observable pattern traceable to a similar cause, and to determine if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems. These problems, along with planned and taken corrective actions, were discussed with the RP Manager.

b. Findings

No findings of significance were identified.

.7 RPT Proficiency

a. Inspection Scope

During job performance observations, the inspectors evaluated RPT performance with respect to RP work requirements and evaluated whether they were aware of the radiological conditions in their workplace, the RWP controls and limits in place, and if their performance was consistent with their training and qualifications with respect to the radiological hazards and work activities.

Radiological problem reports which found that the cause of the event was RPT error were reviewed to determine if there was an observable pattern traceable to a similar cause, and to determine if this perspective matched the corrective action approach taken by the licensee to resolve the reported problems.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning And Controls (71121.02)

.1 Inspection Planning

a. Inspection Scope

The inspectors reviewed plant collective exposure history, current exposure trends, ongoing and planned activities in order to assess current performance and exposure challenges. This included determining the plant's current 3-year rolling average collective exposure in order to help establish resource allocation and to provide a perspective of significance for any resulting inspection finding assessment.

The inspectors reviewed the outage work scheduled during the inspection period, and associated work activity exposure estimates, including the five work activities which were likely to result in the highest personnel collective exposures. Site specific trends in collective exposures and source-term measurements were determined. Procedures associated with maintaining occupational exposures, ALARA and processes used to estimate and track work activity specific exposures were reviewed.

b. Findings

No findings of significance were identified.

.2 Radiological Work Planning

a. Inspection Scope

The inspectors evaluated the licensee's list of work activities ranked by estimated exposure that were in progress and selected the five work activities of highest exposure significance using the following criteria:

- The inspectors reviewed the ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements in order to verify that the licensee had established procedures, and engineering and work controls that were based on sound RP principles in order to achieve occupational exposures that were ALARA. This also involved determining that the licensee had reasonably grouped the radiological work into work activities, based on historical precedence, industry norms, and/or special circumstances.

- The inspectors compared the results achieved, including dose rate reductions and person-rem used, with the intended dose established in the licensee's ALARA planning for these work activities. Reasons for inconsistencies between intended and actual work activity doses were reviewed. The interfaces between operations, RP, maintenance, maintenance planning, scheduling and engineering groups, were evaluated to identify interface problems or missing program elements. The integration of ALARA requirements into work procedure and RWP documents was evaluated to verify that the licensee's radiological job planning would reduce dose.

- The inspectors compared the person-hour estimates, provided by maintenance planning and other groups to the RP group, with the actual work activity time requirements, in order to evaluate the accuracy of these time estimates. Shielding requests from the RP group were evaluated with respect to dose rate reduction along with engineering shielding responses follow up. The inspectors evaluated if work activity planning included consideration of the benefits of dose rate reduction activities, such as shielding provided by water filled components/piping, job scheduling, and shielding and scaffolding installation and removal activities. The licensee's post-job (work activity) reviews were evaluated to verity that identified problems were entered into the licensee's corrective action program.

b. Findings

No findings of significance were identified.

.3 Verification of Dose Estimates and Exposure Tracking Systems

a. Inspection Scope

The inspectors reviewed the assumptions and bases for the current annual collective exposure estimate including procedures, in order to evaluate the licensee's methodology for estimating work activity-specific exposures and the intended dose outcome. Dose rate and man-hour estimates were evaluated for reasonable accuracy.

The licensee's process for adjusting exposure estimates or re-planning work, when unexpected changes in scope, emergent work or higher than anticipated radiation levels were encountered, was evaluated. This included determining that adjustments to estimated exposure (intended dose) were based on sound RP and ALARA principles and not adjusted to account for failures to control the work. The frequency of these adjustments was reviewed to evaluate the adequacy of the original ALARA planning process.

The licensee's exposure tracking system was evaluated to determine whether the level of exposure tracking detail, exposure report timeliness, and exposure report distribution was sufficient to support control of collective exposures. RWPs were reviewed to determine if they covered too many work activities to allow work activity specific exposure trends to be detected and controlled. During the conduct of exposure significant work, the inspectors evaluated if licensee management was aware of the exposure status of the work and would intervene if exposure trends increased beyond exposure estimates.

b. Findings

No findings of significance were identified.

.4 Job Site Inspections and ALARA Control

a. Inspection Scope

The inspectors selected five work activities in radiation areas, airborne radioactivity areas, or HRAs for observation, emphasizing work activities that presented the greatest radiological risk to workers. Jobs that were expected to result in the highest collective doses were observed and included diving activities in the spent fuel pool, and work in areas that involved potentially changing or deteriorating radiological conditions. The licensee's use of ALARA controls for these work activities was evaluated using the following:

- The licensee's use of engineering controls to achieve dose reductions was evaluated to verify that procedures and controls were consistent with the licensee's ALARA reviews, that sufficient shielding of radiation sources was provided for, and that the dose expended to install/remove the shielding did not exceed the dose reduction benefits afforded by the shielding.

- Job sites were observed to determine if workers were utilizing the low dose waiting areas and were effective in maintaining their doses ALARA by moving to the low dose waiting area when subjected to temporary work delays.

- The inspectors attended work briefings and observed ongoing work activities to determine if workers received appropriate on-the-job supervision to ensure the ALARA requirements were met. This included verification that the first-line job supervisor ensured that the work activity was conducted in a dose efficient manner by minimizing work crew size, ensuring that workers were properly trained, and that proper tools and equipment were available when the job started.

- Exposures of individuals from selected work groups were reviewed to evaluate any significant exposure variations which could exist among workers, and to determine whether these significant exposure variations were the result of worker job skill differences, or whether certain workers received higher doses because of poor ALARA work practices.

b. Findings

No findings of significance were identified.

.5 Radiation Worker Performance

a. Inspection Scope

Radiation worker and RPT performance was observed during work activities being performed in radiation areas, airborne radioactivity areas, and HRAs that presented the

greatest radiological risk to workers. The inspectors evaluated whether workers demonstrated the ALARA philosophy in practice by being familiar with the work activity scope and tools to be used, by utilizing ALARA low dose waiting areas, and that work activity controls were being complied with. Also, radiation worker training and skill levels were reviewed to determine if they were sufficient relative to the radiological hazards and the work involved.

b. Findings

No findings of significance were identified.

.6 Problem Identification and Resolution

The inspectors reviewed the licensee's self-assessments, audits, and Special Reports related to the ALARA program since the last inspection, to determine if the licensee's overall audit program's scope and frequency for all applicable areas under the Occupational Cornerstone met the requirements of 10 CFR 20.1101(c).

The inspectors verified that identified problems were entered into the corrective action program for resolution, and that they had been properly characterized, prioritized, and resolved. This included dose significant post-job (work activity) reviews and post-outage ALARA report critiques of exposure performance.

Corrective action reports related to the ALARA program were reviewed and staff members were interviewed to verify that follow-up activities had been conducted in an effective and timely manner commensurate with their importance to safety and risk using the following criteria:

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

The licensee's corrective action program was also reviewed to determine if repetitive deficiencies and/or significant individual deficiencies in problem identification and resolution had been addressed.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES (OA)

4OA1 Performance Indicator (PI) Verification (71151)

Cornerstones: Initiating Events and Mitigating Systems

a. Inspection Scope

The inspectors reviewed reported first quarter 2003 data for unplanned power changes and heat removal system unavailability, PIs using the definitions, and guidance contained in Nuclear Energy Institute (NEI) 99-02, "Regulatory Assessment Indicator Guideline," Revision 2. The inspectors reviewed station logs, event notification reports, licensee event reports, CRs, and TS logs to verify the accuracy of the licensee's data submission.

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

From April 14 through April 15, the inspectors performed a review of a sample of inservice inspection related problems that were identified by the licensee and entered into the corrective action program. The inspectors conducted this review in an office on the second floor of Maintenance Building 100 within the site protected area. The inspectors reviewed these corrective action program documents to confirm that the licensee had appropriately described the scope of the problems. Additionally, the inspectors' review included confirmation that the licensee had an appropriate threshold for identifying issues and had implemented effective corrective actions. The inspectors performed these reviews to ensure compliance with 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requirements. The specific corrective action documents that were reviewed by the inspectors are listed in the attachment to this report.

b. Findings

No findings of significance were identified.

.2 Annual Sample Review

a. Inspection Scope

During RFO9, licensee personnel identified a condition where contractor personnel removed and detorqued bolts for a CDRM that was not scheduled for work. The inspectors reviewed the associated CR and root cause for the event. In addition, the

inspectors performed a walkdown of the subject CRDM, interviewed key personnel and reviewed applicable procedures.

b. Findings

The inspectors concluded that the root cause performed on the event identified a reasonable set of apparent causes. However, one of the causes, contractor oversight, was an area of emphasis prior to the outage. This event represents an instance where the corrective actions associated with improving contractor oversight failed to prevent recurrence of contractor related problems. In addition, the corrective actions associated with the event may be too narrowly focused on under vessel activities, thus limiting the effectiveness of the corrective actions.

4OA3 Event Followup (71153)

a. Inspection Scope

The inspectors observed control room personnel responding to FHB radiation and evacuation alarms received after an irradiated fuel rod was inadvertently damaged during licensee inspection activities on April 24. The inspectors arrived in the control room within minutes of the event and observed the follow-up actions by the licensee including operator briefings, monitoring of plant conditions, completion of required ONI actions, and emergency plan review. The inspectors reviewed the licensee's emergency plan to verify the event was appropriately characterized as an "Alert" and that notification of county, state, and federal agencies occurred in a timely manner. As part of the event follow-up, the inspectors observed plant chart recorders, compared requirements of ONIs with observed licensee performance, and reviewed personnel statements from both control room and FHB personnel.

Although the activation of the licensee's technical support center was not procedurally required due to the "Alert" entry conditions dissipating rapidly as radiation levels quickly returned to normal levels, the licensee chose to staff the facility to assist in the development of a recovery plan. The inspector's observed technical support center personnel performance to verify adequacy of communications and compliance with administrative problem solving procedures.

b. Findings

Following declaration of an Alert on April 24, the inspectors identified that the licensee failed to classify the Alert within 15 minutes. This was identified as an Unresolved Item (URI) pending determination whether any violation of NRC requirements occurred, and a determination as to the significance, if any violation is determined to have occurred.

At about 11:00 a.m. on April 24, a fuel pin broke on the fuel handling floor during inspection activities. Shortly thereafter, the FHB Gaseous Radiation Monitor sounded. The licensee evacuated the FHB, drywell, and containment areas in response to the alarm and entered their Off-Normal Instruction for Fuel Handling Accidents. Initially, control room personnel were unaware of the cause of the alarm and the personnel they had been in contact with on the fuel handling floor were not aware of the damaged fuel pin. Between 11:20 a.m. and 11:30 a.m., a senior reactor operator (SRO) supporting

the shift manager (SM) confirmed that a fuel pin had been broken. Using the Emergency Plan, the SRO determined that the entry conditions for an Alert had been met. At 11:30 a.m. and after another SRO had reviewed and endorsed his conclusion, the SRO informed the SM that a fuel pin had been broken and the conditions were satisfied for entry into an alert classification. While the SRO was reviewing entry conditions for an Alert, the FHB radiation alarm had cleared. At 11:50 a.m. the SM declared an Alert and immediately exited the Alert because radiation levels had returned to normal and the fuel pin had been placed in a safe configuration, i.e the conditions for an Alert were no longer met. The inspectors concluded that the event classification took at least 20 minutes which appeared to exceed the 15-minute goal of the licensee's emergency plan.

This issue was considered an URI pending review by region based specialists. Appendix B of IMC 0609 stipulates that findings will not be issued for Emergency Action Level classifications in excess of 15 minutes if the delay occurred because of activities necessary to protect the health and safety of the public. The region based specialists need to evaluate the event and make this determination. Once the determination is made, the safety significance must be determined in accordance with IMC 0609. Pending completion of these activities, the issue is considered an URI **(URI 50-440/03-04-04).** The licensee has entered this issue into their corrective action program as CR 03-02408.

4OA5 Other Activities

A self-revealed violation of TS 5.4 occurred on May 7, when the licensed operator "at-the-controls" left the "at-the-controls" and operations area of the control room without using the appropriate procedure for shift and relief turnover.

On May 7, shortly before 4:40 a.m., two licensed operators conducted a temporary relief turnover for the "at-the-controls" position. At approximately 4:40 a.m., the licensed operator who had assumed the "at-the-controls" position left the "at-the-controls" and operations area of the control room for approximately 20 seconds to obtain initials from an instrumentation and control technician on a fuse replacement checklist. During the individual's absence, a control room annunciator was received. When the alarm was not acknowledged, two licensed operators who were also in the "at-the-controls" area (conducting an EDG surveillance run) observed the "at-the-controls" operator's absence and one responded to the annunciator. The annunciator was expected due to operation of the inclined fuel transfer system. The "at-the-controls" operator returned to the "at-the-controls" area and completed a temporary relief turnover with the original "at-the-controls" operator a few minutes later. The operator who had left the "at-the-controls" area completed his shift and departed the site. The operator did not inform the supervisory SRO of the event prior to departing the site. The other two operators in the area, conducting the EDG run, did not inform the supervising SRO since they assumed the "at-the-controls" operator would. Operations management was not made aware of the personnel error until approximately 16.5 hours later at which time a condition report was generated and the individual was relieved of licensed operator duties pending incident review and remediation.

The inspectors determined that failing to perform a shift turnover prior to leaving the "at-the-controls" area represented a performance deficiency necessitating a significance

evaluation. The inspectors applied the criteria in IMC 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Disposition Screening," and concluded that the finding was greater than minor because it can reasonably be viewed as a precursor to a significant event. Operators are relied upon, in part, to detect and respond to changing plant conditions and serve to both prevent accidents and mitigate the effects of accidents should one occur. In other circumstances, a second licensed operator may not be in the control room and the alarm condition may not have been expected. Additionally, the failure to promptly identify a performance deficiency was not consistent with site expectations. The finding is of very low safety significance because the annunciator was expected due to inclined fuel transfer system operation and the licensed operator was out of the "at-the-controls" area for only approximately 20 seconds.

The performance deficiency associated with this event was the failure to follow procedures for shift and relief turnover. TS 5.4 required implementation of procedures required by Regulatory Guide 1.33. Regulatory Guide 1.33 required procedures for shift and relief turnover. The licensee developed PAP-0126, "Shift Staffing and Shift Relief," Rev. 2, for shift staffing and shift relief and this procedure included instructions for relief of the licensed operator "at-the-controls" including temporary reliefs. Contrary to TS 5.4 requirements, this procedure was not used prior to the licensed operator "at-the-controls" leaving the "at-the-controls" and operations area of the control room on May 7. As a result, a control room annunciator was not acknowledged until another licensed operator, fortuitously in the "at-the-controls" area for another evolution, responded to the annunciator. The licensee entered this finding into the corrective action program (CR 03-03032). Because of the very low safety significance and because the issue has been entered into the licensee's corrective action program, it is being treated as a NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy **(NCV 50-440/03-04-05).**

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 June 27. 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

- Inservice Inspection IP 71111.08 with Mr. W. Kanda on April 23;
- Emergency Preparedness inspection with Mr. D. Bauguess on June 17;
- Access Control and ALARA with Mr. W. Kanda and Mr. T. Rausch on April 17 and June 12; and telephone discussion with Mr. R. Coad on July 1.

4OA7 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 a NCV.

- TS 5.4 requires that procedures be developed and implemented for repair and replacement of control rod drives. Contrary to these requirements, the licensee failed to follow procedures for repair and replacement of CRDMs. Specifically, the licensee removed six of eight bolts and detorqued the remaining two bolts for CRDM 22-35, even though this CRDM was not in the scope for repair or replacement. The licensee discovered that these bolts were removed while working on an unrelated repair of local power range monitor. Following detection of the missing bolts, the licensee suspended core alterations and replaced the missing bolts and CRDM's gasket. Had the licensee not detected the missing bolts, the potential existed for the CRDM to leak at power. Because the licensee detected the missing bolts while still in Mode 5 and corrected the deficiency, the inspectors considered this violation to be of very low safety significance.

ATTACHMENT: SUPPLEMENTAL INFORMATION

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee
W. Kanda, Vice President-Nuclear
D. Bauguess, Emergency Planning Supervisor
K. Cimorelli, Acting Director, Nuclear Maintenance
R. Coad, Radiation Protection Manager
R. Hayes, Chemistry Manager
V. Higaki, Manager, Regulatory Affairs
T. Lentz, Director Nuclear Engineering
J. Lausberg, Supervisor, Compliance
K. Ostrowski, Director, Nuclear Maintenance
D. Phillips, Manager, Plant Engineering
T. Rausch, General Manager, Nuclear Power Plant Department
R. Strohl, Superintendent, Plant Operations
C. Wirtz, ISI Engineer

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-440/2003004-04	URI	Failure to Classify an Alert within 15 Minutes (4OA3)

Opened and Closed

50-440/2003004-01	NCV	Failure to Provide Continuous Radiological Surveillance (2OS1)
50-440/2003004-02	NCV	Failure to Place Dosimetry to Properly Reflect Highest Whole Body Dose (2OS1)
50-440/2003004-03	NCV	Failure to Properly Control Access to a Locked High Radiation Area (2OS1)
50-440/2003004-05	NCV	Failure to Follow Procedures for Shift and Relief Turnover (4OA5)

Discussed

None

LIST OF DOCUMENTS REVIEWED

The following is a list of documents reviewed during the inspection. Inclusion on this list does not imply that the NRC inspectors reviewed the documents in their entirety but rather that selected sections of portions of the documents were evaluated as part of the overall inspection effort. Inclusion of a document on this list does not imply NRC acceptance of the document or any part of it, unless this is stated in the body of the inspection report.

1R01 Adverse Weather

ONI-ZZZ-1; Tornado or High Winds; Rev. 2

PAP-0911; Control Room Boundary Integrity and Tornado Depressurization Barrier Impairment; Rev. 1

Station Logs; April 1, 2002 through May 6, 2003

List of Active Fire Impairments For CC, IB, RW, and SB; dated May 6, 2003

National Climatic Data Center's log of severe weather events for Lake County, Ohio from January 1, 2002 through February 28, 2003

CR 02-02237; Seasonal Readiness For Summer 2002 Critique; dated July 9, 2002

IOI-15; Seasonal Variations; Rev. 1

Work Control Section Desk Guide 09; Seasonal Readiness Desk Guide; Rev. 3

SOI-M43; DG Building Ventilation System; Rev. 6

PTI-M43-P0005; DG Building Ventilation System Damper Stroking - Division 1; Rev. 4

1R04 Equipment Alignment

VLI-R44; Division 1 and 2 DG Starting Air System (Unit 1); Rev. 4

VLI-R45; Division 1 and 2 DG Fuel Oil System (Unit 1); Rev. 4

VLI-R46; Division 1 and 2 DG Jacket Water Systems (Unit 1); Rev. 3

VLI-R47; Division 1 and 2 DG Lube Oil (Unit 1); Rev. 4

WO 99-016789-000; Diesel Engine Lube Oil Keep Warm Pump Seal Leaks; origination date November 8, 1999

Drawing D 302-09701-00000; High Pressure Core Spray System; Rev. DD

VLI-E22A; High Pressure Core Spray (Unit 1); Rev. 5

VLI-R44/E22B; Division 3 DG Starting Air System (Unit 1); Rev. 4

VLI-R45/E22B; Division 3 DG Fuel Oil System (Unit 1); Rev. 3

VLI-R46/E22B; Division 3 DG Jacket Water System (Unit 1); Rev. 5

1R05 Fire Protection

Drawing E-023-022; Fire Protection Evaluation - Units 1 and 2 Reactor Building Plan - El. 664'-7"; dated March, 1991

Drawing E-023-019; Fire Protection Evaluation - Units 1 and 2 Control Complex Plan - Elevations 654'-6", 679'-6"; dated March, 1992

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

Drawing E-023-006; Fire Protection Evaluation- Units 1 and 2 Control Complex Plan - El. 574'-10"; dated January 2003

USAR Section 9A.4.1.1.2; Fire Area 1RB-1b

USAR Section 9A.4.2.1.2; Fire Zone 1AB-1b

USAR Section 9A.4.4.1.1; Fire Zone CC-1a

USAR Section 9A.4.4.1.2; Fire Zone CC-1b

USAR Section 9A.4.4.6; Fire Areas, Floor 6

USAR Section 9A.4.12; Heater Bay

CR 03-04049; Means of Egress Affected By Scaffold Build; dated June 27, 2003

Fire Drill Planning Guide; Scenario #FDUI-1375-060903; dated June 9, 2003

1R07 Heat Sink Performance

CR 03-01651; Analytical Discrepancies which Impact EQ Room Temps. and M39 Room Coolers; dated April 2, 2003

ECA-067; Estimation of EQ Zone Temperature Increases as a Result of Temperature Changes; Rev. 0

ECP 02-045A; RHR Pump Rooms Transient Addendum 01; Rev. 1

1R08 Inservice Inspection Activities

Audit

Observation Report PA 01-02; dated July 10, 2001

Condition Reports

01-0978; Welds To Valve 1E12F0018A Were Made With The Valve In The Closed Position; dated March 1, 2001

02-00538; OE 13216 Supplemental Information On Quad Cities Unit 1 Failed Jet Pump Hold Down Beam; dated February 20, 2002

02-04440; Containment Vessel; dated November 21, 2002

02-04534; Industry Shroud Head Stud Assembly Modifications; dated November 27, 2002

03-00333; Outside Containment Elevation 610 to 664 Azimuth 0 to 360 Degrees; dated January 23, 2003

03-00498; ASME Piping; dated January 31, 2002

Condition Reports Issued As a Result of Inspection Activities

03-02104; LPCI Nozzle N6A to Safe-End Weld; dated April 14, 2003

Code Replacement/Repair Activities

Work Order 99-008427-000; Install B-Side Pipe Fittings, Instrument Line Caps And Other Mechanical Related Portions Of Steam Condensing Mode Elimination (DCP 98-0024); dated December 18, 1999

Work Order 99-020887-000; Weld 1E12D0506B Into System; dated December 18, 1999

Nondestructive Examination Reports

Radiographic Records for weld RHR-1; dated December 18, 1999

Radiographic Records for weld RHR-2, dated December 18, 1999

1Q800-01-008; Manual UT Examination Of The RPV Head Dollar Plate Weld; dated March 14, 2001

1Q800-01-009; Manual UT Examination Of The RPV Head Meridional Weld; dated March 14, 2001

1Q800-01-010; Manual UT Examination Of The RPV Head Meridional Weld; dated March 14, 2001

1Q800-01-021; Automated UT Examination Of Nozzle N6A-To-Safe End Weld; dated March 14, 2001

1Q800-99-022; Automated UT Examination Of Feedwater Nozzle N4E-To-Safe End Weld 1B13-N4C-KB; dated April 15, 1999

1Q800-99-019; Automated UT Examination Of Feedwater Nozzle N4A-To-Safe End Weld 1B13-N4A-KB; dated April 20, 1999

1Q800-99-016; Automated UT Examination Of Feedwater Nozzle N4D-To-Safe End Weld 1B13-N4D-KB; dated April 20, 1999

Procedures

NQI-0941; Liquid Penetrant Examination; Revision 8

NDE-008; Manual Ultrasonic Examination of Ferritic Piping Welds; Revision 8

NQI-0942; Magnetic Particle Examination; Revision 6

NQI-0944; Ultrasonic Examination; Revision 6

NQI-1042; Visual Examination; Revision 8

Miscellaneous Documents

Weld Data Sheet; Weld FW-RHR-1; dated December 16, 1999

Weld Data Sheet; Weld FW-RHR-2; dated December 16, 1999

Weld History Record; Weld 99-8427-1; dated December 15, 1999

Weld History Record; Weld 99-8427-1; dated December 15, 1999

WPS 1.1.2-001; Manual GTAW/SMAW, Revision 8

WPS M01002; Manual And Machine GTAW, Revision N

PQR A01256-2; dated June 29, 1987

PQR M01253.1; dated October 6, 1987

PQR 002; dated November 4, 1983

PQR 009; dated January 30, 1985

1R13 Risk Assessment

WO 02-010072-000; Emergency Closed Cooling; Rev. 0

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

Plant Logs March 31, 2003 through April 1, 2003

Week 11, Period 9 Risk Profile

WO 99-019019-000; Hydraulic Control Unit 22-19; Rev. 01

GMI-0024; Freeze Seals; Rev. 5

NOP-OP-1005; Shutdown Safety; Rev. 3

Pre-Outage Shutdown Safety Review for RFO9

Daily Shutdown Safety Status Reports; dated April 14 through April 18, 2003

Daily Shutdown Safety Status Reports; dated May 12 through May 23, 2003

CR 03-04044; Entry Into Orange Risk and Contingency Planning Not Communicated; dated June 27, 2003

1R14 Personnel Performance During Nonroutine Plant Evolutions

Problem Solving Plan; Safely Move the Damaged Bundle to a More Secure Location; dated April 25, 2003

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

ONI-D17; High Radiation Levels Within Plant; Rev. 6

ONI-J11-2; Fuel Handling Accidents; Rev. 5

EPI-A1; Emergency Action Levels; Rev. 6

ONI-ZZZ-7; Contingency Plans; Attachment 5; Containment/Fuel Handling Building Closure; Rev. 1

1R15 Operability Evaluations

CR 03-01569; Submergence Depth Used to Prevent Vortexing is Inadequate; dated March 28, 2003

MPR Calculation 0280-0013-DJW-1; Assessment of Fuel Oil Transfer from Fuel Oil Storage Tank to Day Tank; Rev. 0

TS 3.8.3; Diesel Fuel Oil, Lube Oil, and Starting Air

1R16 Operator Work Arounds

SDM C11; Rod Control and Information; Rev. 7

SOI C11(RCIS); Rod Control and Information System; Rev. 10

LCO 3.1.3; Control Rod Operability

M&C-14; Work Around Policy; dated February 15, 2000

Operator Work Around; 1G61N0025 Drywell Equipment Drain Sump Low Level Cutout Switch; dated November 20, 2001

Operator Work Around; Off-Gas Pretreat Rad Monitor; dated November 27, 2001

Operator Work Around; Control Room Oxygen Monitor; dated December 12, 2002

1R17 Permanent Plant Modifications

10CFR 50.59 Evaluation; Initiating Activity No. ECP 02-0213A; Rev. 0

WO 02-010072-000; Emergency Closed Cooling; Rev. 0

USAR Section 9.2.2; Emergency Closed Cooling System

ECP 02-0213A; Rev. 0

1R19 Post-Maintenance Testing

WO 00-007463-000; Emergency Service Water Pump “B”; Rev. 0

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

PTI-P45-P0002; ESW System Loop B Flow and Differential Pressure Test; Rev. 9

SVI-P45-T2002; ESW Pump B and Valve Operability Test; Rev. 12

PMI-0053; Division 1 and 2 Standby DG Connecting Rod and Piston Maintenance; Rev. 2

WO 02-012286-000; Generator, Emergency- Diesel Driven; Rev. 0

PTI-C11-P0004; CRDM Stall Flow Testing; Rev. 3

PTI-C11-P0010; Control Rod Speed Adjustments; Rev. 3

PY-SVI-M26T1260A; Control Room Emergency Recirculation Subsystem A Flow and Filter Operability Test; dated June 20 2003

1R20 Refueling and Outage Activities

IOI-1; Cold Startup; Rev. 11

IOI-2; Hot Startup; Rev. 9

IOI-3; Power Changes; Rev. 10

IOI-4; Shutdown; Rev. 6

IOI-7; Cooldown Following a Reactor Scram Main Condenser Available; Rev. 5

IOI-8; Shutdown By Manual Reactor Scram; Rev. 1

IOI-9; Refueling; Rev. 7

IMI-E2-47; Installation of Reactor Refuel Level Instrumentation For IOI-9; Rev. 1

IMI-E2-54; Installation/Removal of Temporary Recorder to Monitor Shutdown Cooling Parameters; Rev. 2

ONI-ZZZ-7; Contingency Plans; Attachment 5; Containment/Fuel Handling Building Closure; Rev. 1

SOI-G41(FPCC); Fuel Pool Cooling and Cleanup System; Rev. 8

WO 01-007913-000; Upper Containment Airlock Barrel; Rev. 0

WO 01-007912-000; Lower Containment Airlock Barrel; Rev. 0

WO 01-007908-000; Lower Containment Airlock Barrel; Rev. 0

WO 01-007910-000; Upper Containment Airlock Barrel; Rev. 0

Operating Experience for Perry Refueling Outage 09

SVI-M40-T5340; Fuel Building Integrity to Handle Irradiated Fuel; Rev. 3

SDM G41; Fuel Pool Cooling; Rev. 5

SDM P43; Nuclear Closed Cooling; Rev. 7

Operations Evolution Order to Energize EF1B07; May 1, 2003

WO 02-002548-000; Division I ATWS Inverter; March 3, 2003

Clearance PYR-R14-0019; ATWS Uninteruptable Power Supply

DWG 206-0065-00000; ATWS Uniteruptable Power Supply; Rev. S

RFO-9 Daily Restart Restraint List; dated May 15 through May 25, 2003

PYBP-SITE-0002; Restart Readiness for Plant Outages; Rev. 0

1R22 Surveillance Testing

SVI-C71-T0427; Rx Mode Switch Refuel Mode Channel Functional; Rev. 5

TS 3.9.1; Refueling Equipment Interlocks

TS 3.9.2; Refuel Position One-Rod-Out Interlock

SVI-R43-T1337; Division Standby DG Loss of Offsite Power (LOOP) Test; Rev. 5

SVI-R43-T5366 ;LPCS/LPCI A Initiation and Loss of EH11 Response Time Test; Rev. 8

PAP-1101; Inservice Testing of Pumps and Valves; Rev. 5

TS 5.5.6; Inservice Testing Program

SVI-E51-T2010; Operability Test of RCIC Injection Check Valves (1E51 F065 and F066); Rev. 1

SVI-E22-T1349; Division 3 HPCS DG 24 Hour Run; Rev. 0

1R23 Temporary Modifications

GEI-0157; Temporary Power; Rev. 3

WO 02-012936-000; 480VAC Distribution Panel; Rev. 0

WO 03-002253-000; Motor Control Centers; Rev. 0

WO 02-012937-000; Distribution Panel 480V F1B12; Rev. 0

DWG 209-207; 480V Load Centers; Rev. G

DWG 214-0004; Concduit and Tray Separation Criteria; Rev. U

1EP4 Emergency Action Level and Emergency Plan Changes

Perry Nuclear Power Plant's Emergency Plan; Revisions 15, 16 and 17

1EP6 Drill Evaluation

Perry Nuclear Power Plant 2003 ERO Team "B" Drill

CR 03-04046; Portion of EP Drill Scenario Used Prior to Drill; dated June 24, 2003

2OS1 Access Control to Radiologically Significant Areas

2OS2 ALARA Planning and Controls

PJE-03-017; ALARA Post Job Evaluation: RWCU System Chem Decon Activities; Revision 0

PJE-03-018; ALARA Post Job Evaluation: RWCU System and Heat Exchanger Room Activities; Revision 0

PJE-03-019; ALARA Post Job Evaluation: Permanent Shielding Activities; Revision 0

PJE-03-020; ALARA Post Job Evaluation: Miscellaneous Maintenance Activities; Revision 0

PJE-03-021; ALARA Post Job Evaluation: Scaffolding Activities; Revision 0

PJE-03-022; ALARA Post Job Evaluation: Valve Repair Activities; Revision 0

PJE-03-024; ALARA Post Job Evaluation: Snubber Activities; Revision 0

PJE-03-027; ALARA Post Job Evaluation: Insulation Activities; Revision 0

RWP 036012; RFO9-RWCU-1G33 Activities; March 27, 2003

RWP 036009; RFO9 Chemical Decontamination Activities; March 27, 2003

RWP 036035; RFO9 RWCU Heat Exchanger Room Activities; March 31, 2003

HPI-C0005; ALARA Briefing Checklist for RWP 036009; April 10, 2003

RWP 036025; Scaffolding Activities; March 31, 2003

RWP 036020; RFO9 Reactor Disassembly and Reassembly; April 1, 2003

HPI-C0005; ALARA Radiological Risk Assessment Worksheet for RWP 036020; April 1, 2003

RWP 036016; RFO9 MSIV and SRV Activities; April 5, 2003

RWP 036014; RFO9 Undervessel Activities; March 31, 2003

HPI-C0005; ALARA Radiological Risk Assessment for RWP 036014; April 3, 2003

RWP 036007; RFO9 Routine ALARA Activities; March 27, 2003

HPI-C0005; ALARA Radiological Risk Assessment; April 3, 2003

HPI-C0005; ALARA Briefing Package for Cavity Decontamination; April 5, 2003

ALARA Committee Meeting Minutes; April 11, 2003 through May 19, 2003

HPI-B0003; Processing of Personnel Dosimetry; Revision 10

HPI-C0005; Radiation Work Permit Surveys and Surveillances; Revision 9

HPI-B0004; Personnel Radiation Dose Calculations; Revision 7

HPI-C0005; Radiation Work Permit Preparation and ALARA Reviews; Revision 8

PAP-0114; Radiation Protection Program; Revision 4

PAP-0123; Control of Locked High Radiation Areas; Revision 7

HPI-L0006; Instrument Quality Checks; Revision 3

Chemistry Isotopic Data; March 2, 2001 through April 4, 2003

BRAC Point Dose Rate Measurements; April 14, 2003

NOP-LP-2001-07; Immediate Investigation for CR 03-02073; April 16, 2003

TLD/MG Dose Discrepancy Evaluation for CR 03-02216; Revision 0

Root Cause Analysis Report: Unintended Exposure for RWCU Heat Exchanger Work; May 13, 2003

03-012; Internal Dose Assessment For Perry Engineer; Revision 0

Gamma Spectroscopy Analyses-Smears RWCU Heat Exchanger Room; April 19, 2003

0301775; Radiological Survey Report: Dive Activities; April 7, 2003

0302109; Radiological Survey Report: RWCU Heat Exchanger Room; April 19, 2003

0360130; Radiological Survey Report: RWCU Heat Exchanger Room; April 12, 2003

0302095; Radiological Survey Report: RWCU Heat Exchanger Room; April 19, 2003

0360168; Radiological Survey Report: RWCU Heat Exchanger Room; April 14, 2003

0301933; Radiological Survey Report: RWCU Heat Exchanger Room; April 13, 2003

0350150; Radiological Survey Report: Drywell Building, 630' Elevation; April 16, 2003

PY-C-02-02; Nuclear Quality Assessment Quarterly Audit Report; August 15, 2002

PY-C-02-03; Nuclear Quality Assessment Quarterly Audit Report; December 3, 2002

PY-C-02-04; Nuclear Quality Assessment Quarterly Audit Report; February 27, 2003

PA-02-01; Nuclear Quality Assessment RP Program; February 27, 2002

467RPS2002; Dosimetry Self-Assessment; September 30, 2002

466RPS2002; LHRA Self-Assessment; June 10, 2002

465RPS2002; ALARA Planning Unit Self-Assessment; January 21, 2003

359RPS2001; ALARA Program Self-Assessment; February 4, 2002

358RPS2001; LHRA Control Self-Assessment; February 1, 2002

03-01894; MG Dose Alarm; April 9,2003

03-01802; MG Alarm Upon Entry Into Drywell; April 7, 2003

03-01773; Outage Workers Are Not Reporting PACP Exit Gamma 60 Alarms; April 7, 2003

03-02097; Refuel Floor and Reactor Cavity Dose Rates Higher Than Expected; April 15, 2003

03-02099; Worker Alarms PACP Exit Lane Portal Monitors; April 14, 2003

03-01794; High Contamination Levels in Reactor Cavity After Initial Drain Down; April 7, 2003

03-01749; Drywell Worker Has MG On Pause; April 6, 2003

03-01763; Availability and Utilization of RP Resources Impacts Outage; April 6, 2003

03-01623; Area For Improvement/Enhancement in The HIS-20 Desk Guide; April 1, 2003

03-01720; G33 Chemical Decon Area, Aux 620 Work Lacks Good HP Practices; April 5, 2003

03-01643; MG Dose Rate Alarm During CRDM Activities; April 2, 2003

03-01724; Unexpected Airborne Levels In Containment During Shutdown; April 5, 2003

03-01829; Scaffold Project Cannot Meet Dose Budget As Planned; April 8, 2003

03-02073; Corrective Action: Unintended Dose For RWCU Heat Exchanger Work; May 7, 2003

03-02086; Corrective Action: Stopwork Order Issued To Address Rad Control Deficiencies During RFO9; May 9, 2003

03-02216; Corrective Action: TLD/DRD Discrepancy Noted For Unplanned Exposure in RWCU Heat Exchanger Room; June 3, 2003

03-02255; Corrective Action: Review of Telemetry Problems for Outage; June 4, 2003

03-02994; G-33 RWCU System Improvement Project Exceeds Dose Estimate; May 6, 2003

03–01704; Lessons Learned from Down Posting Activities; April 4, 2003

03-01706; RPS ALARA Requested Lead Shielding Training From PTS; April 4, 2003

03-01745; Overtime Deviation Request Submitted Late; April 6, 2003

03-01755; Near Miss Human Performance LHRA Guard Responsibilities; April 6, 2003

03-01777; Daily Check of RP Instrumentation Not Being Performed; April 7, 2003

03-02201; Positive Whole Body Counts Resulting From Jarring Insulation in The RWCU Heat Exchanger Room; April 18, 2003

03-02073; Unintended Exposure for RWCU Heat Exchanger Worker; April 14, 2003

03-02068; Failure To Notify The Control Room In A Timely Manner; April 14, 2003

03-02761; RFCA Process Was Not Used For Televiewe 2000 Installation; May 1, 2003

03-03013; RFA-Incorporate Enhancements Identified by CR 03-02073 Into RP Programs; May 7, 2003

03-03139; Contaminated Boundary Moved Causing Personnel Contamination; May 10, 2003

03-02039; Internal Deposition Due to Worker Not Receiving RAD Briefing; April 14, 2003

03-01977; MG Dose Rate Alarm Received By Two Individuals; April 11, 2003

03-01877; Unexpected Dose Rate Alarm For Worker in Drywell; April 9, 2003

03-02080; Elevated General Area Dose Rate on Drywell 583 Foot Level; April 14, 2003

4OA1 Performance Indicator (PI) Verification

Plant Narrative Logs; April 1, 2002 through March 31, 2003

Engineering system unavailability tracking logs; second quarter 2002

Engineering system unavailability tracking logs; first quarter 2003

4OA2 Problem Identification and Resolution

GMI-0067; Installation and Removal of Control Rod Drives and Thermal Sleeves; Rev. 5

CR 03-02857; CRDM 22-35 Fasteners not as Required; May 2, 2003

4OA3 Event Followup

ONI-D17; High Radiation Levels Within Plant; Rev. 6

ONI-J11-2; Fuel Handling Accidents; Rev. 5

EPI-A1; Emergency Action Levels; Rev. 6

ONI-ZZZ-7; Contingency Plans; Attachment 5; Containment/Fuel Handling Building Closure; Rev. 1

Personnel Statements Connected to the Receipt of FHB Gas and Iodine Alarms During Fuel Bundle Inspections; dated April 24, 2003

4OA5 Other Activities

CR 03-03032: Requirements of PAP-0126 Not Met; dated May 7, 2003

PAP-0126, “Shift Staffing and Shift Relief,” Rev. 2

LIST OF ACRONYMS USED

ALARA	As-Low-As-Is-Reasonably-Achievable
ASME	American Society of Mechanical Engineers
CFR	*Code of Federal Regulations*
CR	Condition Report
CRDM	control rod drive mechanisms
DG	diesel generator
ECCS	emergency core cooling system
ECCW	emergency core cooling water
EDG	emergency diesel generator
EP	emergency preparedness
ESW	emergency service water
FHB	fuel handling building
HPCS	high pressure core spray
HRA	high radiation area
HX	heat exchanger
IMC	Inspection Manual Chapter
LHRA	locked high radiation area
NCV	non-cited violation
NRC	Nuclear Regulatory Commission
OA	Other Activities
ONI	Off-Normal Instruction
OWA	operator work around
PAP	Plant Administrative Procedure
PI	performance indicator
RCIC	reactor core isolation cooling
RFO	refueling outage
RHR	residual heat removal
R/hr	rem per hour
RP	radiation protection
RPT	radiation protection technician
RPS	radiation protection specialist
RWCU	Reactor Water Clean Up
RWP	Radiation Work Permit
SDP	Significance Determination Process
SM	shift manager
SRO	senior reactor operator
SVI	Surveillance Instruction
TS	Technical Specification
UT	Ultrasonic
URI	unresolved item
USAR	Updated Safety Analysis Report
VHRA	very high radiation area
VLI	Valve Lineup Instruction
WO	work order
VLI	Valve Lineup Instruction
WO	work order

INFORMATION REQUESTED ON JANUARY 6, 2003 BY E-MAIL (To C. Wirtz)

A. Please provide the following information to Melvin S. Holmberg at the Region III NRC office located at 801 Warrenville Rd, Lisle IL 60532, no later than March 21, 2003, to support the NRC Inservice Inspection (IP 71111.08) scheduled to begin at the Perry site April 14, 2003.

1) A detailed schedule of nondestructive examinations planned for Class 1 & 2 systems and containment, performed as part of your ASME Code ISI Program during the scheduled inspection week. This should also include any special nondestructive examinations of core internal components such as the core shroud welds.
2) A copy of the procedures used to perform the examinations identified in A.1. For ultrasonic examination procedures qualified in accordance with Appendix VIII, of Section XI of the ASME Code, provide documentation supporting the procedure qualification. This documentation should include the test data identifying the types of defects used in the procedure qualification, the equipment used (cables, probes, transducers including serial numbers) and the Code Edition used for qualification. Additionally, the data supporting the detection and sizing capability of the procedure is to be provided.
3) A copy of any ASME Section XI, Code Relief Requests applicable to the examinations identified in A.1.
4) A copy of the 90 day ISI summary report from the previous outage.
5) A list identifying nondestructive examination reports (ultrasonic, radiography, magnetic particle, dye penetrant, visual (VT-1, VT-2, VT-3)) which have identified relevant indications on Code Class 1 & 2 systems in the past two refueling outages.
6) List of welds in Code Class 1, 2 and 3 systems which have been completed since the beginning of the last refueling outage (identify system, weld number and reference applicable documentation).
7) For any reactor vessel weld examinations scheduled during the inspection, provide a detailed description of the welds to be examined, extent of the planned examination and a copy of your responses to the NRC, associated with Generic Letter 83-15.
8) Identify any non-code repairs (if any) performed on Code Class 1,2, or 3 systems within the last two refueling outages.
9) Provide a list with description of ISI related issues entered into your corrective action system beginning with the date of the last refueling outage.
10) Provide a copy of any part 21 reports submitted beginning with the date of the last refueling outage.
11) Copy of responses to NRC Generic Letter 94-03: INTERGRANULAR STRESS CORROSION CRACKING OF CORE SHROUDS IN BOILING WATER REACTORS and core shroud weld examination schedule.

B. Information to be provided on-site to the inspector at the entrance meeting:

1) Updated schedule for item A.1.

2) For welds selected by the inspector from A.6 above, provide copies of the following documents:
   a) Document of the weld number and location (e.g. system, train, branch).
   b) Document with a detail of the weld construction.
   c) Applicable Code Edition and Addenda for weldment.

d) Applicable Code Edition and Addenda for welding procedures.
e) Applicable weld procedures (WPS) used to fabricate the welds.
f) Copies of procedure qualification records (PQRs) supporting the WPS on selected welds.
g) Copies of mechanical test reports identified in the PQRs above.
h) Copies of the nonconformance reports for the selected welds.
i) Radiographs of the selected welds and access to equipment to allow viewing radiographs.

3) For the repair/replacement activities selected by the inspector provide a copy of the records of the repair or replacement required by the ASME Code Section XI Articles IWA -4000 or IWA 7000.
4) Copy of the most recent quality assurance department audit, which included the ISI program and activities. Copies of documents resolving findings in this audit.
5) For core shroud welds examined within the previous two refueling outages, provide the non-destructive examination records for the core shroud welds inspected.

7. Ready access to the Editions of the ASME Code (Sections V, IX and XI) applicable to the inservice inspection program and the repair/replacement program.