January 30, 2002

EA-99-012

Mr. Guy Campbell
Vice President - Nuclear, Perry
FirstEnergy Nuclear Operating Company
P. O. Box 97, A200
Perry, OH 44081

SUBJECT: PERRY NUCLEAR POWER PLANT
NRC INSPECTION REPORT 50-440/01-15

Dear Mr. Campbell:

On December 31, 2001, the NRC completed an inspection at your Perry Nuclear Power Plant. The enclosed report documents the inspection findings which were discussed on January 9, 2002, with you and other members of your staff.

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

Based on the results of this inspection, the inspectors identified two issues of very low safety significance (Green) that were determined to involve violations of NRC requirements. However, because of their very low safety significance and because they were 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 deny these Non-Cited Violations, you should provide a response with a basis for your denial, within 30 days of the date of this inspection report, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001, with copies to the Regional Administrator, Region III; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Perry Nuclear Power Plant.

Immediately following the terrorist attacks on the World Trade Center and the Pentagon, the NRC issued an advisory recommending that nuclear power plant licensees go to the highest level of security, and all promptly did so. With continued uncertainty about the possibility of additional terrorist activities, the Nation's nuclear power plants remain at the highest level of security and the NRC continues to monitor the situation. This advisory was followed by additional advisories and although the specific actions are not releasable to the public, they generally include increased patrols, augmented security forces and capabilities, additional security posts, heightened coordination with law enforcement and military authorities, and more limited access of personnel and vehicles to the sites. The NRC has conducted various

audits of your response to these advisories and your ability to respond to terrorist attacks with the capabilities of the current design basis threat (DBT). From these audits, the NRC has concluded that your security program is adequate at this time.

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

Sincerely,

/RA/

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

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

Enclosure: Inspection Report 50-440/01-15

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U. S. NUCLEAR REGULATORY COMMISSION

REGION III

Docket No:	50-440
License No:	NPF-58
Report No:	50-440/01-15
Licensee:	FirstEnergy Nuclear Operating Company (FENOC)
Facility:	Perry Nuclear Power Plant, Unit 1
Location:	P.O. Box 97 A200 Perry, OH 44081
Dates:	November 19 through December 31, 2001
Inspectors:	Steven Sanchez, Acting Senior Resident Inspector John Ellegood, Resident Inspector Laura Collins, Project Engineer John House, Senior Radiation Specialist Dave Nelson, Radiation Specialist
Approved by:	Christine A. Lipa, Chief Branch 4 Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000440-01-15; on 11/19-12/31/2001; FirstEnergy Nuclear Operating Company; Perry Nuclear Power Plant. Personnel Performance During Non-Routine Plant Evolutions.

This report covers a 6-week routine inspection. The inspection was conducted by resident inspectors and three regional inspectors. Two findings of very low risk significance were identified during this inspection and were considered to be Non-Cited Violations. The significance of most findings is indicated by their color (Green, White, Yellow, Red) using IMC 0609, "Significance Determination Process" (SDP). The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website at: http://www.nrc.gov/NRR/OVERSIGHT/index.html.

A. Inspection Findings

Cornerstone: Initiating Events and Barrier Integrity

- Green. The inspectors identified a Non-Cited Violation for failure to follow procedures for invoking a Technical Specification (TS) when a containment isolation valve failed to automatically close upon receipt of an isolation signal. The failure of the valve to automatically close was not made known to the oncoming shift crew and as a result, the operability of the valve was unknown for approximately 14 hours (Section 1R14).

  This finding was determined to be of very low safety significance because the redundant isolation valve remained operable and the actual duration did not exceed allowable times per TS.

- Green. The inspectors identified a Non-Cited Violation for failure to follow procedures for controlling reactor vessel level within the required band (Section 1R14).

  This issue was determined to be of very low safety significance because all mitigating systems remained available and no pressure or temperature limits were exceeded.

B. Licensee Identified Violations

None

Report Details

Summary of Plant Status: The plant began the inspection period with Unit 1 at 100 percent power. On December 15, 2001, at 10:28 p.m., an automatic reactor scram occurred due to high water level in the reactor vessel from a failure in the feedwater level control system and the recirculation pumps shifting to slow speed. The licensee completed repairs and returned the plant to criticality at 3:17 a.m. on December 18. On December 21, the licensee identified incomplete engagement of the turbine generator disconnect switch and subsequently reduced power to 85% as a precautionary measure. On December 26, the plant reduced power to 20% and the licensee fully engaged the disconnect. On December 27, the plant returned to 100% power and remained there for the remainder of the inspection period, except for a small power reduction for routine rod line changes.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R01 Adverse Weather (71111.01)

a. Inspection Scope

The inspectors reviewed various procedures to evaluate the licensee's readiness to protect mitigating systems from cold weather. The inspectors conducted walkdowns of various plant structures and systems to check for maintenance or other apparent deficiencies that could affect system operations during cold weather conditions. The specific procedures reviewed are listed in the attached List of Documents Reviewed.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment (71111.04Q)

Partial System Walkdown

a. Inspection Scope

The inspectors conducted partial alignment walkdowns of the safety related systems listed below to evaluate the readiness of systems. The walkdowns included selected switch and valve position checks, reviewing associated operating procedures in effect, and verification of electrical power to critical components. The inspectors reviewed applicable sections of the Updated Safety Analysis Report (USAR) and Technical Specifications (TS) as applicable to the walkdown. The documents used for the walkdown are listed in the attached List of Documents Reviewed.

- High Pressure Core Spray Pump
- Division 3 diesel generator

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05Q)

a. Inspection Scope

The inspectors walked down the main control room area looking for any fire protection issues related to: the control of transient combustibles; ignition sources; fire detection equipment; manual suppression capabilities; passive suppression capabilities; automatic suppression capabilities; and barriers to fire propagation. The inspectors reviewed various fire protection procedures and drawings. The specific procedures used are listed in the attached List of Documents Reviewed.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification (71111.11)

.1 Operating Test Results

a. Inspection Scope

The inspectors reviewed the pass/fail results of individual operating tests and simulator operating tests (required to be given per 10 CFR 55.59(a)(2)) administered by the licensee during calendar year 2001.

b. Findings

No findings of significance were identified.

.2 Requalification Simulator Training

a. Inspection Scope

The inspectors observed licensed operator performance in the plant simulator on November 27. One scenario included an open safety relief valve (SRV), one emergency service water (ESW) pump out of service and another one failing to start upon a scram with high pressure core spray (HPCS) and reactor core isolation cooling (RCIC) injecting. The Division I diesel generator also failed to start, followed by a low pressure coolant injection pump starting but unable to inject. The second scenario included a partially open SRV, a residual heat removal pump out of service, a credible bomb threat that subsequently detonated, followed by a reactor protection system channel failure resulting in control rods failing to go in. The inspectors observed the crew's ability to perform actions prescribed by off-normal and emergency procedures, oversight and direction provided by crew supervisors, crew emergency plan classifications and notifications, and the quality of crew interactions and internal communications. The

inspectors also observed that the licensee evaluators adequately assessed crew performance and that the simulator facility closely matched the actual operating facility. The inspectors verified that the prescribed critical tasks were met, and the crew's actions met licensee expectations.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12Q)

a. Inspection Scope

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

- Interbus Transformer (R23)
- Division 1 & 2 Diesel Generators (R43)

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

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

- Work Week Activities of November 25, including the diesel fire pump unavailability
- Plant configuration during recovery from December 15 Scram

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

Following an automatic Level 8 scram at 10:28 p.m. on December 15, 2001 the inspectors responded to the site and observed activities related to post-scram recovery and investigation. The inspectors observed operator actions, reviewed operator logs, plant computer, and strip chart data, to determine what occurred and to assess the operator's response. The inspectors also assessed activities related to the subsequent reactor startup to ensure that the evolution was conducted in accordance with Technical Specifications (TS) and licensee operating procedures.

b. Findings

This inspection identified two Green Non-Cited Violations relating to operator actions following the scram. The first addresses operator failure to enter TS 3.6.1.3 upon discovery of an inoperable isolation valve. The second addresses improper control of vessel level following the scram.

Response to Inoperable Isolation Valve

Green. The inspectors identified a Non-Cited Violation (NCV) of T.S. 5.4.1.a for failure to follow procedures regarding entry into TS and to inform the oncoming shift of plant status. Following the reactor scram, the reactor water cleanup inboard isolation valve, G33-F0001, did not automatically close upon receipt of a Level 2 balance of plant (BOP) isolation signal. The operators identified this on a post-isolation verification checklist walk-down. The operators manipulated the control switch and closed valve G33-F0001, thereby manually fulfilling the required automatic action. When the operator discovered the valve failure, the TS required entry into TS 3.6.1.3 Condition A (isolate penetration within 4 hours). The crew on shift did not log entry into this condition nor communicate it to the oncoming shift. During system restoration, which occurred approximately 95 minutes following the scram, the operators re-opened the valve prior to determining valve operability and did not enter TS 3.6.1.3 Condition E as required (be in Mode 3 in 12 hours and Mode 4 in 36 hours). Approximately 14 hours after the scram, plant management identified that valve G33-F0001 was inoperable and initiated actions to repair the valve and remain compliant with TS 3.6.1.3. Because the plant was in Mode 3 immediately following the scram and the valve was restored within 36 hours, the licensee did not violate the TS Completion Times.

When the initial event notification (50.72) was made on December 16, 2001, at 12:30 a.m., it did not mention the failure of the valve to automatically isolate. Instead, the event notification reported that all protective devices acted normally. After the inspectors discussed these circumstances further with the licensee, an updated event notification was provided to the NRC on December 17, 2001, at 6:44 p.m.

This issue was more than minor because failure to understand that automatic protective devices are inoperable can lead to operation outside of Technical Specifications and with mitigative systems unable to perform their safety function. In this case, operators

actually opened the isolation valve as part of the plant recovery without the awareness that it would not close automatically. If this condition had remained undetected, the plant would have returned to power operations (Mode 1) and violated Technical Specifications. In addition, failure to recognize the valve failure could credibly have led to an increase in the duration of the inoperable condition. Since the redundant valve remained operable and the plant did not remain in Mode 3 in excess of the action time specified in TS, this issue was of very low safety significance. However, TS 5.4.1.a, requires, in part, that written procedures shall be implemented covering procedures recommended in Appendix A of Regulatory Guide (RG) 1.33, Revision 2, which includes Administrative Procedures. Plant Administrative Procedure PAP-201, Conduct of Operations, Section 6.2.2, required that the operations shift manager review and invoke applicable TS during abnormal and emergency conditions. Contrary to this requirement, on December 15, 2001, during reactor scram response, the shift manager failed to invoke TS 3.6.1.3, Condition A and E when containment isolation valve G33-F0001 failed to automatically close after a Level 2 BOP isolation signal. In addition, Plant Administrative Procedure PAP-126, Shift Staffing and Shift Relief, required the completion of turnover sheets that included the status of equipment out of service. Contrary to this requirement, the status of the inoperable containment isolation valve was not provided to the oncoming shift and went unnoticed for approximately 14 hours. This violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 50-440/01-15-01). This condition has been entered in the licensee's corrective action program as Condition Report 01-4343.

Control of Vessel Level

Green. The inspectors identified an NCV of TS 5.4.1.a for failure to follow procedures for maintaining reactor vessel level. After control room personnel reset the initial scram signal, operators used RCIC to maintain vessel level and were preparing to shift to motor feedwater pump level control. However, the failure of the electronic feedwater level control card that caused the initial scram prevented accurate level readings from the selected channel for level control. Operators shifted to manual control of vessel level using the motor feedwater pump. Emergency Operating Procedure PEI-B13, "Reactor Pressure Vessel Control," specified to "Restore and maintain RPV [reactor pressure vessel] level between 185 in. and 215 in." The operators actually established a vessel level band of 210 to 215 inches. With vessel level not yet under control and some confusion regarding accuracy of level indication, control room personnel failed to exercise proper command and control, resulting in not maintaining level in the established band and causing a Level 3 (177.7") scram to occur. This event is judged to be more than minor since scram actuation results in addition of relatively cold water from the hydraulically operated control rod drives. With the reactor isolated and under low flow conditions, poor mixing results and temperature control becomes difficult with potential for exceeding a pressure/temperature limit and damaging the vessel. In this case, no pressure/temperature limits were exceeded. This increases the frequency of an initiating event. In this case, operators quickly regained level control and restored it to the established band. This event is of very low safety significance because no pressure/temperature limits were exceeded, all mitigating systems remained available, and level remained well above the top of the fuel.

TS 5.4.1.a, requires, in part, written procedures shall be implemented covering procedures recommended in Appendix A of RG 1.33, Revision 2, which includes procedures for combating emergencies. Contrary to this requirement, reactor vessel level was not maintained between 185 to 215 inches as stipulated by PEI-B13. This Violation is being treated as an NCV, consistent with Section VI.A.1 of the NRC Enforcement Policy (NCV 50-440/01-15-02). This condition has been entered in the licensee's corrective action program as CR 01-4296.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the operability justification performed for CR 01-4065. The CR described an issue involving leakage testing of the Emergency Closed Cooling (ECC) Water System. The inspectors reviewed the justification against TS requirements for the ECC system.

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 TS, the USAR, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications. In addition, the inspectors reviewed CRs associated with post-maintenance testing to determine if the licensee was identifying problems and entering them in the corrective action program. The specific procedures and CRs reviewed are listed in the attached List of Documents Reviewed. The specific post-maintenance activities evaluated included:

- RCIC Inboard Isolation Valve (G33)
- Diesel Generator Fire Pump (P54)

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, 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 inservice test-related surveillance activity assessed included:

- SLC Inservice Testing (C41)
- Heatup/Cooldown Monitoring (B21)

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety (OS)

2OS1 Access Control to Radiologically Significant Areas (71121.01)

.1 Plant Walkdowns and Radiation Work Permit (RWP) Reviews

a. Inspection Scope

The inspectors reviewed the radiological conditions of work areas within radiation areas and high radiation areas (HRAs) in the radiologically restricted area to verify the adequacy of radiological boundaries and postings. This included walkdowns of high and locked high radiation area boundaries in the Auxiliary, Intermediate, Containment, and Radwaste Buildings. The inspectors performed independent measurements of area radiation levels and reviewed associated licensee controls to determine if the controls (i.e., surveys, postings, and barricades) were adequate to meet the requirements of 10 CFR Part 20 and the licensee's Technical Specifications. Radiation work permits for jobs having significant radiological dose potential were reviewed for protective clothing requirements and dosimetry requirements including alarm set points.

b. Findings

No findings of significance were identified.

.2 Job In-Progress Reviews

a. Inspection Scope

The inspectors observed aspects of work activities that were being performed in areas having significant dose potential in order to ensure that adequate radiological controls were assigned and implemented. The inspectors observed radiation protection preparations and radiological controls for reactor water clean-up pump work including preparation and packaging pumps for shipment. The inspectors reviewed engineering controls, radiological postings, radiological boundary controls, radiation work permit requirements, radiation monitoring locations, and attended pre-job briefings to verify that radiological controls were effective in minimizing dose. The inspectors also observed radiation worker performance to verify that the workers were complying with radiological requirements and were demonstrating adequate radiological work practices. During work evolutions, radiation protection technician performance was observed to verify that the technicians were aware of the job requirements and that their performance was consistent with the actual and potential radiological hazards involved.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed the licensee's controls for high dose rate HRAs and very high radiation areas (VHRA) including the licensee's procedure for posting and control of these areas to verify the licensee's compliance with 10 CFR Part 20 and the site's Technical Specifications. The inspectors also reviewed records of HRA/VHRA boundary and posting surveillances, and performed a walkdown to verify their adequacy. In addition, the inspectors reviewed the licensee's controls for high dose rate material that was stored in the spent fuel pool and the licensee's inventory of materials currently stored in the spent fuel pool to verify that the licensee implemented adequate measures to prevent inadvertent personnel exposures from these materials.

b. Findings

No findings of significance were identified.

.4 Problem Identification and Resolution

a. Inspection Scope

The inspectors reviewed the licensee's condition report (CR) database from January 2001 through November 2001 concerning problems in HRAs, radiation worker performance, and radiation protection technician performance. The inspectors reviewed these documents to assess the licensee's ability to identify repetitive problems,

contributing causes, the extent of conditions, and corrective actions which will achieve lasting results.

b. Findings

No findings of significance were identified.

2OS2 ALARA Planning and Controls (71121.02)

.1 Job Site Inspections and ALARA Control

a. Inspection Scope

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

b. Findings

No findings of significance were identified.

.2 Problem Identification and Resolution

a. Inspection Scope

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

b. Findings

No findings of significance were identified.

.3 Verification of Exposure Estimate Goal and Exposure Tracking Systems

a. Inspection Scope

The inspectors reviewed the process for estimating annual radiological exposure. Radiological exposure data from refueling outage eight was used to evaluate the licensee's ability to provide reasonably accurate forecasts for radiological work. This included comparing actual exposure results with initial estimates, reviewing the exposure tracking system, and report timeliness and detail. Radiation work permits were reviewed to determine if job specific exposure trends could be identified. Management's review of radiological work and exposure data was evaluated to determine if these results were, or would be, used in the ALARA planning process.

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring Instrumentation (71121.03)

.1 Source Tests and Calibration of Radiological Instrumentation

a. Inspection Scope

The inspectors evaluated radiological instrumentation associated with monitoring transient high and/or very high radiation areas, and instruments used for remote emergency assessment to verify that the calibration process was conducted consistent with industry standards and in accordance with station procedures. The inspectors reviewed the Updated Safety Analysis Report, performed walkdowns, and reviewed calibration records to confirm that selected area radiation monitors (ARMs) were operable and properly indicated area radiation levels. The inspectors examined the licensee's alarm set points for selected ARMs to verify that the set points were established consistent with the station's requirements. The inspectors reviewed the most recent calibration records for selected ARMs and continuous air monitors which included, but were not limited to, the following:

Containment Monitors
Traversing Incore Probe Monitors
Drywell Atmosphere Monitors
Spent Fuel Pool Area Monitors
Control Rod Drive Monitors

The inspectors reviewed CY 2000 - 2001 calibration records and procedures for those instruments utilized for surveys of personnel and equipment prior to egress from the radiologically restricted area. The inspectors examined, and observed RP staff complete functional tests of, selected personnel contamination monitors, portal monitors, and a small article monitor to verify that these instruments were source checked and calibrated adequately, consistent with station procedures and industry standards.

The inspectors examined portable survey instruments maintained in the licensee's instrument issue area to verify that those instruments designated "ready for use" had current calibrations, were operable, and were in good physical condition. The inspectors observed radiation protection staff source check portable radiation survey instruments to verify that those source checks were adequately completed using appropriate radiation sources and station procedures. The inspectors reviewed the calibration procedures and selected 2001 calibration records to verify that the portable radiation survey instruments had been properly calibrated consistent with the licensee's procedures.

Additionally, the inspectors performed a walkdown of the post accident sampling system and reviewed quality control records to ensure that the system was capable of obtaining representative samples of reactor coolant and containment atmosphere.

b. Findings

No findings of significance were identified.

.2 Self-Contained Breathing Apparatus (SCBA) Program

a. Inspection Scope

The inspectors reviewed aspects of the licensee's respiratory protection program for compliance with the requirements of Subpart H of 10 CFR Part 20, to ensure that self-contained breathing apparatus (SCBA) were properly maintained and stored, and to ensure that appropriate personnel were required to be SCBA qualified. The inspectors performed walkdowns of selected SCBA storage locations and inspected a sample of the units to assess the material condition of the equipment and to verify that the monthly inspection requirement had been met. In addition, the inspectors reviewed the licensee's current training and qualification records to verify that applicable personnel were currently trained and qualified for SCBA use, as required by the Emergency Plan and plant procedures.

b. Findings

No findings of significance were identified.

.3 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed CRs for 2001 along with self-assessments and surveillances that addressed radiation instrument/SCBA deficiencies to determine if any significant radiological incidents involving radiation instrument deficiencies had occurred since the last assessment. Additionally, the inspectors examined these documents to verify the licensee's ability to identify repetitive problems, contributing causes, the extent of conditions, and implement corrective actions to achieve lasting results.

b. Findings

No findings of significance were identified.

Cornerstone: Public Radiation Safety

2PS2 Radioactive Material Processing and Transportation (71122.02)

.1 Walkdown of Radioactive Waste Systems

a. Inspection Scope

The inspectors reviewed the liquid and solid radioactive waste system description in the Updated Safety Analysis Report and the most recent information regarding the types and amounts of radioactive waste generated and disposed. The inspectors performed walkdowns of the liquid and solid radwaste processing systems to verify that the systems agreed with the descriptions in the Updated Safety Analysis Report and the Process Control Program, and to assess the material condition and operability of the systems. The inspectors reviewed the current processes for transferring waste resins into shipping containers to determine if appropriate waste stream mixing and/or sampling procedures were utilized. The inspectors also reviewed the methodologies for waste concentration averaging to determine if representative samples of the waste product were provided for the purposes of waste classification in 10 CFR 61.55. During this inspection, the licensee was not conducting waste processing.

b. Findings

No findings of significance were identified.

.2 Waste Characterization and Classification

a. Inspection Scope

The inspectors reviewed the licensee's radiochemical sample analysis results for each of the licensee's waste streams, including dry active waste, resins, and filters. The inspectors also reviewed the licensee's use of scaling factors to quantify difficult-to-measure radionuclides (e.g., pure alpha or beta emitting radionuclides). The reviews were conducted to verify that the licensee's program assured compliance with 10 CFR 61.55 and 10 CFR 61.56, as required by Appendix G of 10 CFR Part 20. The inspectors also reviewed the licensees' waste characterization and classification program to ensure that the waste stream composition data accounted for changing operational parameters and thus remained valid between the annual sample analysis updates.

b. Findings

No findings of significance were identified.

.3 Shipment Preparation

a. Inspection Scope

The inspectors observed the preparation of two separate shipments of radioactive materials (radioactive waste and 10 CFR Part 61 samples.). The inspectors observed the packaging, surveying, labeling, marking, placarding, vehicle checks, emergency instructions, disposal manifest, shipping papers provided to the driver, and the licensee's verification of shipment readiness for each shipment. The inspectors also observed the radiation worker practices of the workers preparing the packages for shipment to verify that the workers had adequate skills to accomplish the task. The inspectors reviewed the records of training provided to personnel responsible for the conduct of radioactive waste processing and radioactive shipment preparation activities. The review was conducted to verify that the licensee's training program provided training consistent with NRC and Department of Transportation requirements.

b. Findings

No findings of significance were identified.

.4 Shipping Records

a. Inspection Scope

The inspectors reviewed five non-excepted package shipment manifests completed in year 2001, to verify compliance with NRC and Department of Transportation requirements (i.e., 10 CFR Parts 20 and 71 and 49 CFR Parts 172 and 173).

b. Findings

No findings of significance were identified.

.5 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed a Quality Assurance audit of the Radioactive Waste and Shipping Program, along with self-assessments of the Dry Active Waste Program to evaluate the effectiveness of the self-assessment process to identify, characterize, and prioritize problems. The inspectors also reviewed corrective action documentation to verify that previous radioactive waste and radioactive materials shipping related issues were adequately addressed. The inspectors also selectively reviewed year 2001 CRs that addressed access control, and radioactive waste and radioactive materials shipping program deficiencies, to verify that the licensee had effectively implemented the corrective action program.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES (OA)

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

The inspectors reviewed a sample of licensee records, including condition reports, reactor coolant system sample results, and operator logs to verify that performance indicator data was accurately reported to the NRC. The plant record reviewed included data from the fourth quarter of 2000 through the third quarter of 2001. The indicators reviewed were:

- Reactor Coolant System Activity
- Safety System Unavailability - Emergency AC Power
- Safety System Unavailability - High Pressure Core Spray

The inspectors reviewed the licensee's determination of performance indicators for the occupational and public radiation safety cornerstones to verify that the licensee accurately determined these performance indicators and had identified all occurrences required. These indicators included the Occupational Exposure Control Effectiveness and the Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences. The inspectors reviewed CRs for the year 2001, quarterly offsite dose calculations for radiological effluents for year 2001 and access control transactions for June 2000 through September 2001. During plant walkdowns (Section 2OS1.1), the inspectors also verified the adequacy of posting and controls for locked HRAs, which contributed to the Occupational Exposure Control Effectiveness performance indicator.

The inspectors also reviewed the licensee's reactor coolant system activity performance indicator for the reactor safety cornerstone to verify that the information reported by the licensee was accurate. The inspectors reviewed the licensee's reactor coolant sample results for maximum dose equivalent iodine-131, October 2000 through November 2001, and the licensee's sampling and analysis procedures. The inspectors also observed a chemistry technician obtain and analyze a reactor coolant sample.

b. Findings

No findings of significance were identified.

4OA3 Event Follow-up (71153)

a. Inspection Scope

The inspectors responded to the site to observe operator actions and plant conditions following an automatic scram from full power late on the evening of December 15. The scram occurred due to a failed summer card in the feed control circuitry. This failure caused a downshift in reactor recirculation pumps from fast to slow speed as well as feedwater flow to increase. The combined effects of swell from the pump downshift and

addition of feedwater raised vessel level to the Level 8 scram setpoint. Level then rapidly decreased and at level 2, HPCS and RCIC started and restored level. On December 17, the licensee began pulling rods to criticality and achieved criticality on December 18. The inspectors followed up on the event by interviewing licensee personnel, reviewing plant logs, chart recorders, sequence of event recorders, and other documents. The inspectors also walked down the control panels and discussed the timeline of the event with licensee personnel.

b. Findings

No findings of significance were identified.

4OA5 Other

(Closed) Violation of 10 CFR 50.7 "Employee Protection" (EA-99-012)

On May 31, 2001, the NRC Atomic Safety and Licensing Board issued a Memorandum and Order Approving the Settlement Agreement and Terminating Proceeding between the NRC and FirstEnergy Nuclear Operating Company (EA-99-012). The agreement provided for an $80,000 civil monetary penalty based on a Severity Level III Violation of 10 CFR 50.7 (VIO 50-440/01-15-03). This item is closed.

4OA6 Meetings

.1 Exit Meeting

The inspectors presented the inspection results to Mr. Guy Campbell, Site Vice President and other members of licensee management at the conclusion of the inspection on January 9, 2002. The licensee acknowledged the findings presented. No proprietary information was identified.

.2 Interim Exit Meeting

Senior Official at Exit:	Jim McHugh, Operations Training Supervisor
Date:	December 14, 2001
Proprietary (explain "yes")	No
Subject:	Results of Licensed Operator Requalification Testing for Calendar Year 2001 and Applicability of NRC Inspection Manual Chapter 0609, Appendix I, "Operator Requalification Human Performance Significance Determination Process (SDP)"
Change to Inspection Findings:	No

.3 Interim Exit Meeting

Senior Official at Exit:	Mr. John K. Wood, Site Vice-President
Date:	December 13, 2001
Proprietary:	No
Subject:	Access Control, ALARA, Instrumentation, and Transportation
Change to Inspection Findings:	No

KEY POINTS OF CONTACT

Licensee

J. Wood, Vice President-Nuclear
B. Boles, Operations Manager
G. Dunn, Manager, Regulatory Affairs
D. Gudger, Supervisor, Compliance
T. Lentz, Manager, Design Engineering
K. Ostrowski, Director, Nuclear Services Department
D. Phillips, Manager, Plant Engineering
J. Powers, Director, Nuclear Engineering Department
R. Schrauder, General Manager, Nuclear Power Plant Department
R. Strohl, Superintendent, Plant Operations
J. McHugh, Operations Training Supervisor
R. Coad, Radiation Protection Manager
C. Nash, Chemistry Supervisor
K. Russell, Compliance Engineer
A. Schwenk, Radwaste Supervisor
L. VanDerHorst, Health Physics Supervisor

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

50-440/01-15-01	NCV	Failure to Follow Procedures for Invoking a TS When a Containment Isolation Valve Failed to Automatically Close
50-440/01-15-02	NCV	Failure to Follow Procedures for Controlling Reactor Vessel Level Within the Required Band
50-440/01-15-03	SL III	Violation of 10 CFR 50.7 “Employee Protection” (Section 4OA5)

LIST OF ACRONYMS USED

ADAMS	Agencywide Documents Access and Management System
ALARA	As Low As Reasonably Achievable
ARM	Area Radiation Monitor
BOP	Balance of Plant
CFR	Code of Federal Regulations
CR	Condition Report
CY	Calendar Year
ECC	Emergency Closed Cooling
ESW	Emergency Service Water
FENOC	FirstEnergy Nuclear Operating Company
HPCS	High Pressure Core Spray
HRA	High Radiation Area
IMC	Inspection Manual Chapter
LCO	Limiting Condition for Operation
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
ONI	Off-normal Instruction
PAP	Plant Administrative Procedure
PARS	Publicly Available Records
RG	Regulatory Guide
RCIC	Reactor Core Isolation Cooling
SCBA	Self-Contained Breathing Apparatus
SDP	Significance Determination Process
SRV	Safety Relief Valve
SVI	Surveillance Instruction
TS	Technical Specifications
USAR	Updated Safety Analysis Report
VHRA	Very High Radiation Area
WO	Work Order

LIST OF DOCUMENTS REVIEWED

1R01 Adverse Weather Protection

IOI-15	Seasonal Variations, Rev. 0	November 10, 1995
PTI-GEN-P0026	Preparations for Winter Operation, Rev. 0	November 18, 1994
PTI-GEN-P0027	Cold Weather Support System Startup, Rev. 0	November 18, 1994
CR 00-3728	Inspection Results of CST Piping	November 30, 2000

1R04 Equipment Alignment

Drawing 302-0701-0000	High Pressure Core Spray System	May 10, 2000
VLI-E22A	Valve Lineup Instruction High Pressure Core Spray	November 4, 1994
PEI-SPI 6.4	Plant Emergency Instruction HPCS Runout Injection	August 19, 1994
VLI-R44/E22B	Valve Lineup Instruction Division 3 Diesel Generator Starting Air System	January 16, 1991
Drawing 302-0358-00000	Div. 3 Diesel Starting Air/Air Dryer	July 27, 2000
SOI-E22B	System Operating Instruction Div. 3 Diesel Generator	January 30, 1995
VLI-R47/E22B	Valve Lineup Instruction Div. 3 Diesel Generator Lube Oil System	April 21, 1989
302-0359-0000	Div. 3 Diesel Lube Oil system	July 27, 2000
VLI-R46/E22B	Div. 3 Diesel Generator Jacket Water System	March 14, 1991
302-0360-00000	Div. 3 Diesel Jacket Water Cooling System	July 27, 2000
VLI-R45/E22B	Valve Lineup Instruction Div. 3 Diesel Generator Fuel Oil System	April 4, 1989
302-0356-00000	HPCS Diesel Generator Fuel Oil System	March 14, 2001
T.S. 3.8	Electrical Power Systems	
USAR Section 8.3	Onsite Power Systems	
TS-3.5.1	Emergency Core Cooling System- Operating	
USAR Section 6.3	Emergency Core Cooling System	

1R05 Fire Protection

PAP-1920	Periodic Fire Inspection, Rev. 4	December 15, 1992
PAP-1914	Fire Protection System Operability, Rev. 6	April 23, 2001

1R12 Maintenance Rule Implementation

PAP-1125	Monitoring the Effectiveness of the Maintenance Program Plan, Rev. 6	April 4, 2001
NUMARC 93-01, Revision 2	Nuclear Energy Institute Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants	
Regulatory Guide 1.160	Monitoring the Effectiveness of Maintenance at Nuclear Power Plants	

1R13 Maintenance Rule Assessments and Emergent Work

PAP 1924	On-Line Safety Assessment and Configuration Risk Management, Rev. 2	November 30, 2000

1R19 Post-Maintenance Testing

WO 01–018017-000	RWCU Suction FM Containment Inboard Isolation Valve	December 17, 2001
PMI	Preventive maintenance Instruction for Fire Pump Diesel Engine	August 29, 1994
WO 01-11392	Diesel Driven Fire Pump	November 26, 2001
PTI-P54-P0035	Periodic Test Instruction Electric and Diesel Fire Pump Monthly Operability Test	December 20, 1993
CR 01-3845	OG dryer Moisture Element	November 5, 2001
CR 01-3990	Failed PMT on 1C85D5004B	November 17, 2001
TS 3.6.1.3	Containment Isolation Valves	
USAR Section 6.2	Containment Systems	

1R22 Surveillance Testing

SVI-B21-T1176	RCS Heatup and Cooldown Surveillance	December 15, 2001
SVI-C41-T2001A	Standby Liquid Control Pump and Valve Operability Test	February 16, 1999
WO 01-004104-000	SLCS A Pump and Valve Opera	December 5, 2001

TS 3.4.11	RCS Pressure and Temperature Limits
TS 3.1.7	Standby Liquid Control System
USAR Section 5.3	Reactor Vessel

2OS1 Access Control to Radiologically Significant Areas

PAP-0114	Radiation Protection Program	Revision 3
PAP-0123	Control of Locked High Radiation Areas	Revision 6
HPI-C0008	In Line Review of Work Orders	Revision 3
HPI-C0005	RWP Preparation and ALARA Reviews	Revision 6
HPI-D0004	High Radiation Area Barricade Surveillance	December 5, 2001
FTI-A0017	Non-SNM Pool Inventory Mechanism	Revision 0
	Spent Fuel Pool Inventory Log	
	Spent Fuel Pool Inventory Tracking Worksheets	
RWP 01-1001-3	Place two RWCU Shipment Containers Into Transport Shield	December 12, 2001
RWP 01-1001-2	Process and Ship Solid Radioactive Waste for Disposal/Burial	December 11, 2001
RWP 01-1040-1	1G33C0001A Pump Replacement	December 10, 2001
PA 00-01	Audit Report: Radiation Protection Program	March 6, 2000
	RWP Dose Report: January-December, 2001	December 4, 2001
	Department Radiological Dose Reports	January-December 2001
	RFO8 Radiation Safety Report (Draft)	
01-0564	Issued LHRA-2 Key #2-23 Instead of #2-59	February 16, 2001
01-0578	Worker Log Off of Incorrect MG	February 17, 2001
01-0669	L1 LHRA Entry Policy	February 21, 2001
01-0862	Access to Dry-Well Elevation 655 During Movement of Irradiated Fuel	February 26, 2001
01-0887	Improper RWP Utilization	February 26, 2001
01-0948	Health Physics Briefing Used Outdated Survey	February 28, 2001
01-1959	Workers Exceed Dose Limit	April 26, 2001
01-0950	Electronic Dosimeters Not Logged Out Properly	February 28, 2001

01-1024	Ineffective Use of Telemonitoring Equipment	March 2, 2001
01-1062	Work Group Did Not Receive Work Briefing	March 3, 2001
01-1995	Potential Overexposure	April 31, 2001
01-2080	Worker Received Dose Alarm	May 14, 2001
01-2094	Dose Rates in HRA Increased	May 5, 2001
01-2098	Containment Upgraded to Posting as HRA	May 6, 2001
01-2264	RWPs Inadequate for Routine RWCU F/D Operation	May 23, 2001
01-2577	Maintenance Individual Received Dose Alarm	June 27, 2001
01-2770	Exceeded the B-DAC Value on RWP	July 16, 2001
01-2278	HIC Tractor Released From RW Truck Bay Without HP Survey	July 17, 2001
01-3143	Two Individuals Enter A Posted Contaminated Area Without Protective Clothing	August 21, 2001

2OS3 Radiological Instrumentation

HPI-E0009	Control of Radiation and Contamination Detection Instrumentation	Revision 5
HPI-A0003	Radiation Monitor Alarm Setpoint Determination	Revision 1
PAP-1403	Control of Setpoints	Revision 6
PAP-0510	Respiratory Protection	Revision 7
HPI-E0009	Response Check of PCM's, Gamma Portals and SAM Monitors	December 9, 2001
HPI-E0009	Response Check of Friskers	December 9, 2001
	Qualification and Fit Report	December 11, 2001
D17-K770	Control Room Airborne Radiation Monitor Calibration	November 6, 2001
D21-K042	CRD HCU West Area Radiation Monitor Calibration	July 2, 2001
D21-K052	RWCU F/D Area Radiation Monitor Calibration	May 4, 2001
D21-K083	Upper Pool Area Radiation Monitor Calibration	June 26, 2001
D21-K142	CRD HCU East Area Radiation Monitor Calibration	August 14, 2001
D21-K253	Radwaste Building 574 West Area Radiation Monitor Calibration	February 20, 2001
D21-K062	TIP Drive Area Radiation Monitor Calibration	November 31, 2001
D21-K322	Fuel Storage Area Radiation Monitor Calibration	November 14, 2000

D21-k332	Spent fuel Pool Area Radiation Monitor Calibration	November 14, 2000
D21-K422	Fuel Pool Circ Pump Area Radiation Monitor Calibration	September 25, 2000
D17-K720	Radwaste Building Ventilation Exhaust Radiation Monitor Calibration	April 6, 2001
D17-K676 D17-K678	Drywell Atmosphere Gaseous and Particulate Radiation Monitor Calibration	August 29, 2001
D17-K686 D17-K687 D17-K688	Containment Atmosphere Radiation Monitor Calibration	August 31, 2001
L70L504E	SAM -9 Tool Monitor Calibration Record	October 2, 2001
L70L009H	Gamma 60 Portal Monitor Calibration Record	October 4, 2001
L70L41H	RO-2 Calibration Record	October 15, 2001
L70L0075	PCM1B Monitor Calibration Record	October 15, 2001
L70L202B	Air Sampler Calibration Record	October 22, 2001
L70L75G	AMP-100 Calibration Record	November 15, 2001
L70L010A	ASP-1 Calibration Record	November 15, 2001
L70L070B	Teletector Calibration Record	October 30, 2001
00-025	Radiation Protection Monitoring Equipment	June 29, 2000
00-043	Radiation Monitoring Instruments	September 21, 2000
357RPS2001	Respiratory Program Self-Assessment	October 31, 2001
01-0504	Teletector Failed a Source Response Check	February 13, 2001
01-0676	Startup With Alarm Test of TIP Drive Area Radiation Monitor	February 21, 2001
01-0841	Spurious Alarms From Electronic Dosimeters	February 25, 2001
01-1946	Gamma 60 Failure of Monthly Performance Test	April 25, 2001
01-2597	TLD Results Lower Than DRD Results by 10.5 percent	June 28, 2001
01-2986	Discrepance in Radiological Survey Records	August 6, 2001
01-3054	Radiological Survey Instrument Failure	August 14, 2001
01-3219	MG Dose Rate Alarm Investigation	September 3, 2001
01-3567	Unexpected MG Dose Rate Alarm	October 9, 2001
01-3937	Meter Failed in Field	November 12, 2001
01-3818	Respiratory Protection Program Self-Assessment	October 31, 2001

2PS2 Radioactive Material Processing and Transportation

120RECS1999	Dry Active Waste Program	August 1999
241RECS2000	Dry Active Waste Site Practices	August 2000
PA 00-08	Radwaste Processing and Shipping	June 21, 2000
01-1664	Non-Compliance Notification for 10-14B Shipping Cask	May 5, 2001
01-2427	Improper Handling of Radioactive Material	July 16, 2001
01-3564	Transport Index Reported Incorrectly on Shipping papers	November 23, 2001
	LSA II Shipment of DAW	December 5, 2001
	Type A Shipment of Dewatered Resin	November 27, 2001
	Type A Shipment of 10 CFR Part 61 Samples	December 5, 2001
	Type A Shipment of a Scrap RWCU Pump	October 29, 2001
	Type B Shipment of Dewatered Resin	November 27, 2001
PCP	Process Control Program (PCP)	November 27, 1995
RECS-RSU-01-00008	10 CFR Part 61 Sample File	July 3, 2001
RECS-RSU-00-00009	10 CFR Part 61 Sample File	March 29, 2000
	Bill of Lading Assignment and Radioactive Material Shipment Records	2001
	FirstEnergy 2001 Waste to Burial Log	December 4, 2001
	FirstEnergy 2001 Miscellaneous Shipments Log	December 4, 2001
	FirstEnergy 2001 Laundry Log	December 4, 2001
	FirstEnergy 2001 Waste to Processors Log	December 4, 2001
	Low Level Waste Characterization Study, Draft Report	August 1999

4OA1 Performance Indicator Verification

System Health Report	High Pressure Core Spray	1st Quarter 2001
System Health Report	High Pressure Core Spray	2nd Quarter 2001
System Health Report	High Pressure Core Spray	3rd Quarter 2001
Logs	Control Room Logs	01/01/01 - 11/14/01