UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
SAM NUNN ATLANTA FEDERAL CENTER
61 FORSYTH STREET SW SUITE 23T85
ATLANTA, GEORGIA 30303-8931

January 23, 2002

Carolina Power and Light Company
ATTN: Mr. J. S. Keenan
Vice President
Brunswick Steam Electric Plant
P. O. Box 10429
Southport, NC 28461

SUBJECT: BRUNSWICK STEAM ELECTRIC PLANT - NRC INTEGRATED INSPECTION REPORT NOS. 50-325/01-04 AND 50-324/01-04

Dear Mr. Keenan:

On December 29, 2001, the Nuclear Regulatory Commission (NRC) completed an inspection at your Brunswick facility. The enclosed report presents the results of that inspection which were discussed on January 7, 2002 with you and other members of your staff.

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

No findings of significance were identified.

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 Carolina Power and Light's response to these advisories and Brunswick's ability to respond to terrorist attacks with the capabilities of the current design basis threat. From these audits, the NRC has concluded that the Brunswick security program is adequate at this time.

In accordance with 10CFR 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/

Brian R. Bonser, Chief
Reactor Projects Branch 4
Division of Reactor Projects

Docket Nos.: 50-325, 50-324
License Nos.: DPR-71, DPR-62

Enclosure: (See page 3)

Enclosure: Inspection Report 50-325/01-04, 50-324/01-04

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U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos:	50-325, 50-324
License Nos:	DPR-71, DPR-62
Report No:	50-325/01-04, 50-324/01-04
Licensee:	Carolina Power and Light Company
Facility:	Brunswick Steam Electric Plant, Units 1 & 2
Location:	8470 River Road SE Southport, NC 28461
Dates:	September 30 to December 29, 2001
Inspectors:	T. Easlick, Senior Resident Inspector E. Brown, Resident Inspector E. Guthrie, Resident Inspector W. Sartor, (Sections 1EP2, 1EP3, 1EP4, 1EP5, 4OA1) S. Vias, Senior Reactor Inspector (Section 1R12) J. Wallo, Physical Security Inspector (Section 3PP1) F. Wright, Senior Health Physicist (Section 20S3) A. Nielsen, Health Physicist (Section 4OA1)
Approved by:	B. Bonser, Chief Reactor Projects Branch 4 Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000325-01-04, IR 05000324-01-04, on 9/30/01 - 12/29/01, Carolina Power & Light Company, Brunswick Steam Electric Plant, Units 1 & 2, baseline integrated resident inspection report.

The inspection was conducted by resident and regional inspectors. No findings of significance were identified during this inspection. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at its Reactor Oversight Process website.

A. Inspector Identified Findings

None

B. Licensee Identified Violations

None

Report Details

Unit 1 began the report period operating at 100 percent rated thermal power (RTP). On December 14 reactor power was reduced to 70 percent RTP for condenser A-North and A-South waterbox repairs. The unit was returned to 100 percent RTP on December 16. On December 28 reactor power was reduced to 74 percent RTP to repair a manway leak on the A-South condenser outlet waterbox. The unit was returned to 100 percent RTP the same day. The unit operated at or near full RTP for the remainder of the inspection period.

Unit 2 operated at or near full RTP during the entire inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R04 Equipment Alignment

a. Inspection Scope

The inspectors reviewed plant documents to determine the correct system lineup, and observed equipment to verify that the systems were correctly aligned while the other train or system was inoperable or out of service. The inspectors reviewed licensee activities to verify that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact mitigating system availability. The inspectors reviewed the following system alignments and reviewed the associated documents:

- Unit 2 High Pressure Coolant Injection (HPCI)
  - Operating Procedure 2OP-19, High Pressure Coolant Injection System Operating Procedure, Rev 96
- Emergency Diesel Generators (EDG) 1, 3, and 4
  - Operating Procedure, 0OP-39, Diesel Generator Operating Procedure, Rev 89
- Unit 1 Loop B Core Spray
  - Operating Procedure 1OP-18, Core Spray System Operating Procedure, Rev 36
- EDG 1, 2, and 4
  - Operating Procedure 0OP-39, Diesel Generator Operating Procedure, Rev 89

In addition, the inspectors performed a detailed inspection of the number 2 EDG to verify that its systems were correctly aligned, and labeled. The power sources and support systems were reviewed to verify availability. Review of these systems included review of outstanding design issues, maintenance work requests, and temporary modifications. The following documents were reviewed:

- Operating Procedure 0OP-39, Diesel Generator Operating Procedure, Rev 89
- Technical Specification (TS) 3.8.1, Electrical Power System, AC Sources
- System Description SD-39, Emergency Diesel Generator, Rev 2
- Piping and Instrumentation Diagrams (P&IDs) for Diesel Generator Units No. 1

and 2, D-2265 through D-2274

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors reviewed current Action Requests (ARs), work orders (WOs), and impairments associated with the fire suppression system. The inspectors reviewed the status of on-going surveillance activities to determine whether they were current to support the operability of the fire protection system. In addition, the inspectors observed the fire protection suppression and detection equipment to determine whether any conditions or deficiencies existed which would impair the operability of that equipment. The inspectors toured the following areas important to reactor safety and reviewed the associated documents:

- Unit 1 and 2 Battery Rooms (23 foot elevation, four areas)
  - Plant Operating Manual, Prefire Plan, 0PFP-CB, Control Prefire Plans, Rev 1
- Unit 2 Diesel Generator 4, Four-Day Tank Room (one area)
  - Plant Operating Manual, Prefire Plan, 0PFP-DG, Diesel Generator Building Prefire Plan, Rev 6
- Unit 1 Emergency Core Cooling System Rooms (-17 foot elevation, five areas)
  - Plant Operating Manual, Prefire Plan, 1PFP-RB, Reactor Building Prefire Plan, Rev 3

In addition the inspectors observed a plant fire drill to assess fire brigade performance to ensure proper fire-fighting techniques for the type of fire encountered.

- Unit 2 Diesel Generator 4, Four-Day Tank Room

  The following documents were reviewed:
  - Plant Operating Manual, Prefire Plan, 0PFP-DG, Diesel Generator Building Prefire Plan, Rev 6
  - Plant Operating Manual, Training Program Procedure 0TPP-219, Fire Protection Training Program, Rev 4
  - U2 Fire Drill No. 99-F-DG-06, Fire in the DG-4 Four Day Tank Room, Rev 0

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

a. Inspection Scope

The inspectors conducted a design review and observed the licensee's equipment and mitigation plans to verify that they were consistent with design requirements. The inspectors concentrated inspection efforts on sealing of equipment and electrical conduits below the floodline, holes and unsealed penetrations in walls between flood areas, and operable sump pumps and level alarm circuits. The inspectors inspected underground safety-related manholes subject to flooding which contained safety-related alternating current and direct current cables. The inspectors reviewed and observed the condition and adequacy of sump pumps, operable level alarm circuits, cable/splice submergence qualification, and manhole drainage adequacy.

The following document was reviewed:
- Updated Final Safety Analysis Report, Chapter 3, Design of Structures, Systems, and Components, Equipment, and Systems, Section 3.4, Water Level (Flood) Design.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification

a. Inspection Scope

The inspectors observed licensed operator performance during simulator training for cycle 2001-06 with one crew. This observation included emergency operating procedure and abnormal operating procedure scenarios. The inspectors observed the licensee's requalification program for licensed operators to verify that safe power plant operation was ensured by adequate evaluation of how well the individual operators and crews mastered the training objectives, including training on high-risk operator actions. One of the scenarios tested the operators' ability to respond to a large break loss-of-coolant accident with reactor vessel water level at two thirds core height. The scenario included establishing containment cooling requirements for long term cooling to prevent core damage. A second scenario tested the operators' ability to respond to an external security threat. The inspectors also observed operator performance to verify consistent clarity and formality of communication, conservative decision-making by the crew, appropriate use of procedures, proper alarm response, and high-risk reactor turbine gauge board manipulations. Group dynamics and supervisory oversight, including the ability to properly identify and implement appropriate TS actions and regulatory reports and notifications, were observed. The following documents were reviewed:

- LOI Core Simulator Scenario, LOT-EOP-010, large break loss-of-coolant accident with reactor vessel water level at two thirds core height. The scenario included establishing containment cooling requirements for long term cooling to prevent core damage.

- LOT-IPO-119, Rev 1, External Security Threat Scenario

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule (MR) Implementation

.1 Review of Maintenance Rule Implementation

a. Inspection Scope

For the equipment issues described in WOs, and ARs listed below, the inspectors reviewed the licensee's implementation of the MR (10 CFR 50.65) with respect to the characterization of failures, the appropriateness of the associated a(1) or a(2) classification, and the appropriateness of either the associated a(2) performance criteria or the associated a(1) goals and corrective actions:

- Units 1 and 2 Main Steam Isolation Valve (MSIV)/ Primary Containment Isolation Valve Leakage

  The following documents were reviewed:
  - AR 00050669, Incorrect Maintenance Rule Functional Failure Definition for MSIVs
  - MR Event Log Report, July 1,1993 - November 9, 2001, System 1000, Primary Containment Isolation Valves
  - Units 1 and 2, As-Found MNPLR Summation and As Found Savings Report

- Pressure Switch 1-B32-PS-N018B Found Out of TS tolerance

  The following documents were reviewed:
  -AR 00052364, 1-B32-PS-N018B Found Out of Tech Spec Tolerance
  -MR Event Log Report, December 5, 2000- December 5, 2001

- Unit 2 Safety Relief Valve (SRV) Temperature Recorder Functional Failure

  The following document was reviewed:
  - AR 00051346, Unit 2 SRV Temperature Recorder MR Functional Failure

- Diesel Generator 2 Inoperable Due to High Cylinder Exhaust

  The following documents were reviewed:
  - AR 00049367, DG2 Inop Due to High Cylinder Exhaust
  - MR Event Log, October 15, 1998 - October 15, 2001

- Failure of the 2-E11A-K105A Relay Contacts 1 and 2 to Close

  The following documents were reviewed:
  - AR 00051145, 2-E11A-K105A Contacts 1&2 Failure to Close (0MST-RHR26Q)
  - WO 191094-01

- Failure of the 1B Residual Heat Removal (RHR) Room Cooler

The following documents were reviewed:
- AR 00052162, Failure of the 1B RHR Room Cooler
- MR Event Log Report, 12/4/00 - 12/4/01, WO 19710901, U1 RHR Room Coolers
- MR Event Log Report, 12/5/93 - 12/4/01, WO 94AHUC1, U1 RHR Room Coolers
- Archived Operator Log, 12/2/01, Room Cooler Inoperable

- Unit 1, Flow Unit A B32-Z8, B32-Z09 Out of Calibration

  The following documents were reviewed:
  - AR 0004579, Found Unit 1, Flow Unit A B32-Z8, B32-Z9, Out of Cal
  - Maintenance Procedure MMM-004 Out-of Calibration System Engineer Review Form, APRM Flow Unit A

- Failure of Diesel Generator 1 Jacket Water Temperature Control Valve

  The following document was reviewed:
  -Operating Procedure 0OP-39, Diesel Generator Operating Procedure, Rev 89

b. Findings

No findings of significance were identified.

.2 Review of MR Periodic Assessment

a. Inspection Scope

The inspectors reviewed the licensee's MR periodic assessment, dated July 2001. The assessment report was issued to satisfy paragraph a(3) of 10 CFR 50.65. The inspectors reviewed the assessment to verify that the assessment was issued in accordance with the time requirements of the MR and included evaluation of: balancing reliability and unavailability; MR a(1) and a(2) activities; and use of industry operating experience. To verify compliance with 10 CFR 50.65, the inspectors reviewed selected MR activities covered by the assessment period from the following risk significant systems: 2095 - High Pressure Coolant Injection; 2100 - Reactor Core Isolation Cooling; and 5095 - EDG. For the risk significant systems listed above, the procedures, documents, and databases reviewed during this inspection are listed below:

The inspectors also attended a Maintenance Rule Expert Panel Meeting and a Equipment Priority Review Meeting.

- Guidance for Balancing Unavailability & Reliability for High Safety Significant (HSS) MR Systems

- Nuclear Generating Group Standard Procedure ADM-NGGC-0101, Maintenance Rule Program, Rev 13
- Nuclear Generating Group Standard Procedure CAP-NGGC-0202, Operating Experience Program, Rev 3
- MR Events on a(1) Systems
- MR a(1) List
- MR a(1) Performance Indicator
- MR Balancing Report - High Safety Significant MR Systems
- BNP MR a(1) System Action Plan
- Repeat MR Functional Failures
- MR System Scoping Summary
- MR System Boundary Guidance
- MR Expert Panel Minutes [May 23, 2001- November 7, 2001]
- BNP MR Program a(3) Periodic Self-Assessment Follow-up Review - July 24-27, 2000
- BNP MR Program a(3) Periodic Self-Assessment Plan: June 1, 1999 - May 31, 2001 and November 1,1997 - May 31, 2001

Time Period: September 1, 2001 - December 4, 2001

- Operations Log Entries
- MR Event Log Report
- MR Performance Composite
- MR Performance Criteria Summary
- MR Unavailability Trend
- MR Performance Summary
- MR Events Summary
- Purged WOs

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Evaluation

a. Inspection Scope

For the following activities, the inspectors reviewed the effectiveness of risk assessments performed prior to changes in plant configuration for maintenance activities (planned and emergent), and verified that upon unforseen situations the licensee had taken the necessary steps to plan and control the resultant emergent work activities:

- Diesel Generator 2 inoperable due to injector and valve problems

  The following document was reviewed:
  - BNP Risk Profile Week 40, October 10, 2001

- Work Week 42 Activities

  The following document was reviewed:
  - BNP Risk Profile Week 42, October 19, 2001

- Work Week 45 Activities including Unit 1 downpower

  The following document was reviewed:
  - BNP Risk Profile Week 45, November 26, 2001

- Work Week 48 Activities including Unit 1 condensate booster pump outage

  The following document was reviewed:
  - BNP Risk Profile Week 48, December 3, 2001

- Work Week 49 Activity including Unit 1 downpower

  The following document was reviewed:
  - BNP Risk Profile Week 49, December 10, 2001

- Work Week 50 Activities including Unit 1 downpower

  The following document was reviewed:
  - BNP Risk Profile Week 50, December 17, 2001

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed selected operability evaluations affecting the risk significant mitigating systems listed below, to assess, as appropriate: (1) the technical adequacy of the evaluations; (2) whether continued system operability was warranted; (3) whether other existing degraded conditions were considered as compensating measures; (4) where compensatory measures were involved, whether the compensatory measures were in place, would work as intended, and were appropriately controlled; (5) where continued operability was considered unjustified, the impact on TS limiting conditions for operations and the risk significance in accordance with the SDP. These reviews were performed for the following:

- Units 1 and 2 Standby Gas Treatment System Piping Water Accumulation Plugging the Lines

The following document was reviewed:
- Calculation 0SBGT-0009, SBGT Downstream Piping Condensation Accumulation

- Emergency Diesel Generator 2, cylinder 2R exhaust valve seat insert dropped out

  The following documents were reviewed:
  - AR 00049367, DG2 Valve Seat Insert Drop
  - Technical Report 01-284, Analysis of the BNP Emergency Diesel Number 2 Valve Seat Insert Drop Event

- Unit 1 Residual Heat Removal (RHR) Loop A Snubbers

  The following documents were reviewed:
  - Snubber/Support Corrective Action/Evaluation Documentation Sheet, CS/S No. 1-E11-685559
  - AR 00049660, Offset Condition identified in Snubber 1-E11-83 SS 446

- Unit 2 Service Water System Through-Wall Leak on Pipe 2-SW-1030240157

  The following document was reviewed:
  - ESR-01-00439, Rev 0, Operability Evaluation of Thru Wall Leak on 2-SW-103-24-157

- Units 1 and 2 Emergency Diesel Generator Switchgear Room High Temperature

  The following documents were reviewed:
  - ESR-01-00440, Rev 0, Operability Evaluation for DG Emerg. Swgr Room High Temp
  - AR 00051109, EDG 4 KV Prot. Relay Temperature Qualification Documentation

- Unit 1 EHC Electrical Malfunction

  The following document was reviewed:
  -ESR-01-00458, Rev 0, Evaluate the EHC Electrical Malfunction Event

- Engine Driven Fire Pump Battery Surveillance Test Failure

  The following documents were reviewed:
  - Maintenance Surveillance Test 0MST-BATT10NA, Fire Pump Diesel Starting Batteries
  - Plant Operating Manual, 0PLP-01.5, Alternative Shutdown Capability Controls, Rev 11

b. Findings

No findings of significance were identified.

1R16 Operator Work-Arounds

a. Inspection Scope

The inspectors reviewed the operator work-around database to determine the cumulative effects of operator work-arounds. The inspectors reviewed the affect of the work-arounds on reliability, availability, and potential mis-operations of the systems involved. The inspectors reviewed whether the operator work-arounds on Unit 1 and Unit 2 could increase an initiating event frequency or could affect multiple mitigating systems. The inspectors also reviewed the cumulative effects of operator work-arounds on operator correct and timely response to plant transients and accidents.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testing

a. Inspection Scope

For the post-maintenance tests and the associated documents listed below, the inspectors reviewed the test procedure and witnessed the testing and/or reviewed test records to determine whether the scope of testing adequately verified that the work performed was completed correctly; and whether the test demonstrated that the affected equipment was capable of performing it's intended function and was operable in accordance with TS:

- Install time delay relay on Control Rod Drive pump 1A
  - WO 00029847, 1A CRD Pump Install New 63X
- Install time delay relay on Control Rod Drive pump 1B
  - WO 00029848, 1B CRD Pump Install New 63X
- Repair of No. 2 Emergency Diesel Generator Cylinder Head 2R
  - Periodic Test, 0PT-12.2.B, No. 2 Diesel Generator Monthly Load Test, Rev 69
- Unit 2 EDG-3 Jacket Water Heater Pump Repair
  - WO Package 00172469-02 and 03, OPS-PMT DG3 Jacket Water Heater Pump
- Unit 1 and 2 Modify SBGT System Piping
  - WO Package 00134131-01 and 02, 1-SGT-V4, Modify SBGT System Piping
  - WO Package 00134201-01 and 02, 2-SGT-V4, Modify SBGT System Piping
- Unit 1 HPCI Overspeed Trip System
  - WO Package 00165226-02, 1-E41-6002, Adjust U-1 HPCI Overspeed Trip
  - Preventive Maintenance Procedure, 0PM-TRB507, High Pressure Coolant Injection Operational Inspection, Rev 6
- E4 Breaker Relay Calibration
  - WO Package 00045720-01, 2-E4-AJ9-51-A, B, C

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing

a. Inspection Scope

The inspectors examined surveillance procedures and/or witnessed testing, and reviewed test records against the UFSAR and TS to determine whether the scope of testing adequately demonstrated that the affected equipment was capable of performing it's intended function and was operable in accordance with TS. The following surveillance tests and associated documents were reviewed:

- Unit 2, Periodic Test, 0PT-07.2.4a, Core Spray System Operability Test-Loop A, Rev 47
- Unit 2, Maintenance Surveillance Test, 2MST-RPS27R, RPS Scram Disch Vol Hi Wtr Lvl Chan Funct Test and Chan Cal, Rev 8
  - Drawing 2-FP-50015, RPS Elementary Diagram
  - Drawing 0-FP-50012, Reactor Manual Control System Elementary Diagram
- Unit 2, Maintenance Surveillance Test, 2MST-PCIS25R, PCIS High Main Steam Line Flow Instrument Chan A Cal, Rev 5, 6, and 7
  - Drawing 2-FP-50056, NSSS Elementary Diagram
  - Drawing F-3933, CB-XU-65, Trip Calibration Cabinet Drawing
  - AR 00051030, Temporary Revision Required to 2MST-PCIS25R
- Unit 2, Maintenance Surveillance Test, 2MST-RHR27R, RHR And CS Time Delay Relays Chan Cal And Functional Test, Rev 8
  - Drawing FP- 05889, Core Spray Elementary Diagram
  - Drawing FP-50017, RHR Elementary Diagram
  - Drawing F-09118, DG-3/E3 Logic Diagram
  - AR 00050842, Relay STR/1A-3 Testing During Performance of 2MST-RHR27R
- Unit 1, Periodic Test 0PT-07.2.4b, Core Spray System Operability Test - Loop B, Rev 48
- Unit 1, Maintenance Surveillance Test 1MST-HPCI21R, HPCI Steam Line Break High D/P Instrument Chan Cal, Rev 18
  - WO 00046572 01, Perform 1MST-HPCI21R, HPCI Steam Line
  - Technical Requirements Manual (TRM) Table 3.3.6.1.-1, Appendix B, Page 1, Primary Containment Isolation Instrumentation
  - AR 00050001, Found 1-E41-PDT-N004 and 1-E41-PDTS-N0004-2 Out of Cal Specs

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert Notification System Testing

a. Inspection Scope

The inspectors evaluated the alert and notification system design and the testing program. The system consisted of 36 sirens within the 10-mile emergency planning zone. The sirens had a biweekly silent test, quarterly growl test, and an annual full cycle test.

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization (ERO) Augmentation Testing

a. Inspection Scope

The inspectors reviewed the design of the emergency response organization augmentation system, and the maintenance of the licensee's capability to staff emergency response facilities within stated timeliness goals.

b. Findings

No findings of significance were identified.

1EP4 Emergency Action Level and Emergency Plan Changes

a. Inspection Scope

The inspectors reviewed changes to the Emergency Plan and the emergency action levels to determine whether any of the changes decreased the effectiveness of the Emergency Plan. The current Brunswick Nuclear Plant Emergency Plan was Revision 58 dated October 23, 2001. The review was performed against 10CFR 50.54(q).

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies

a. Inspection Scope

The inspectors evaluated the licensee program that addressed the tracking and correction of weaknesses and deficiencies in emergency preparedness. Items reviewed included issues identified in the exercise and drill critique reports. There had been no actual implementations of the Emergency Plan since the last inspection.

Findings

No findings of significance were identified.

1EP6 Drill Evaluation

a. Inspection Scope

The inspectors observed an emergency response training drill conducted on October 9 to evaluate drill conduct and the licensee's post-drill critique. The drills were conducted using the plant simulator and emergency facilities. The inspectors evaluated licensee's self-assessment of classification, notification, and protective action recommendation development.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS3 Radiation Monitoring Instrumentation

.1 Instrumentation

a. Inspection Scope

The UFSAR was reviewed to identify radiation monitors associated with transient high and very high radiation areas including those used in remote emergency assessment. The inspectors selected 10 area radiation monitors located in the reactor and radioactive waste buildings to verify the instruments were operable and responding properly. The inspectors reviewed the material condition of the instruments and verified radiation levels measured by the detectors compared with radiation levels measured in those areas by the inspectors.

The inspectors observed source checks, reviewed calibration procedures and records, and discussed setpoint determinations with licensee personnel to verify that the whole body friskers and the portal monitors utilized for monitoring personnel released from the radiologically controlled area were operable and responding properly.

Whole body counter calibration procedures and records were reviewed to verify that the whole body counter was capable of assessing internal intakes of radioactive byproduct materials. Daily quality control checks were also reviewed to verify the equipment continued to function properly.

The inspectors observed source check performance for four portable survey instruments in use by the radiation protection staff to verify instruments were capable of proper instrument response. Instruments included ion chambers, geiger muller, and neutron survey instruments. The inspectors also verified approximately 30 other instruments had received daily source checks during the inspection by a review of licensee records. Portable survey instrument calibrations are performed offsite at the Harris site and were not observed during this inspection. However, calibration records for seven portable survey instruments of the types listed above were reviewed to verify instruments on site had been calibrated.

Radiation protection technician use of portable survey instrumentation was observed to verify the technicians were selecting appropriate instrumentation, verifying operability prior to use and properly using the equipment in performance of radiological surveys and monitoring.

b. Findings

No findings of significance were identified.

.2 Protective Equipment Respiratory Protection - Self Contained Breathing Apparatus (SCBA) Equipment

a. Inspection Scope

The inspectors evaluated the licensee's respiratory protection program and reviewed the status of SCBAs staged for use in the plant. The inspectors interviewed control room operators to determine their level of knowledge of SCBA locations and proper use. SCBAs staged for control room emergency use were inspected for general condition, proper air pressure, and correct number of units available (as per licensee procedure). The licensee's fit testing methods were observed. Licensee procedures related to respiratory protection were reviewed.

b. Findings

No findings of significance were identified.

.3 Identification and Resolution of Problems

a. Inspection Scope

The inspectors reviewed licensee radiation protection self-assessments and audits conducted over the past several years, and surveillances, and ARs for the last 12 months regarding radiation protection issues to determine whether the licensee was identifying and resolving problems. In particular, the inspectors reviewed the licensee's evaluation and corrective actions documented in AR 50510 involving the analysis and control of oil samples unconditionally released from the radiological control area.

b. Findings

No findings of significance were identified.

4. OTHER ACTIVITIES

4OA1 Performance Indicator (PI) Verification

.1 Mitigating Systems and Barrier Integrity PIs

a. Inspection Scope

The inspectors reviewed the PI data reported to the NRC since the last verification inspection was performed. A sample of the plant records and data was reviewed and compared to the reported data. The licensee's corrective action program records were also reviewed to determine if any problems with the collection of PI data had occurred. The inspectors reviewed the following PIs for the period from June 2000 to September 2001:

- Residual Heat Removal System Unavailability
- Safety System Functional Failures
- Reactor Coolant System Activity

The following documents were reviewed:
- Control Room operating logs
- NRC Inspection Reports issued during the review period
- Licensee's data bases for the PIs listed above
- Nuclear Generating Group Standard Procedure REG-NGGC-0009, NRC Performance Indicators, Rev 0
- NEI 99-02 Regulatory Assessment Performance Indicator Guideline

b. Findings

No findings of significance were identified.

.2 ERO Drill/Exercise Performance

a. Inspection Scope

The inspectors assessed the accuracy of the PI for ERO drill and exercise performance (DEP) through review of documentation. In addition, the inspectors reviewed and discussed the licensee's methodology for calculating the DEP PI to determine if the 93.5 percent reported for the previous eight quarters ending September 2001 was correct.

b. Findings

No findings of significance were identified.

.3 ERO Drill Participation

a. Inspection Scope

The inspectors assessed the accuracy of the PI for ERO drill participation through review of source records for selected individuals. The inspectors reviewed the calculation of the PI to determine if the 98.8 percent reported for the previous eight quarters ending September 2001 was correct.

b. Findings

No findings of significance were identified.

.4 Alert and Notification System Reliability

a. Inspection Scope

The inspectors assessed the accuracy of the PI for the alert and notification system reliability through review of the licensee's records of the siren tests. The inspectors reviewed the calculation of the PI to determine if the 99.4 percent reported for the previous 12 months ending September 2001 was correct.

b. Findings

No findings of significance were identified.

.5 Radiation Safety PIs

a. Inspection Scope

The inspectors evaluated the accuracy of the Occupational Exposure Control Effectiveness and Radiological Effluent Technical Specification/Offsite Dose Calculation Manual (RETS/ODCM) Radiolocal Effluent PIs for the period December 2000 through November 2001. The inspectors examined corrective actions (ARs) in the area of radiation protection paying particular attention to any instances of unintended exposure. The 2000 annual effluent report was reviewed for any anomalous releases that could have provided significant dose to the public. The inspectors reviewed the licensee's procedure for the collection and analysis of performance indicator data.

b. Findings

No findings of significance were identified.

4OA5 Other

Physical Protection of Irradiated Fuel Shipments

a. Inspection Scope [81310]

The inspectors evaluated the licensee's planning for a shipment of irradiated fuel which included the utility's written notification to State officials at least seven days prior to the shipment, the utilization of a route approved by the NRC, the coordination with local law enforcement agencies in locations along the route to ensure prompt emergency support if needed, and the limiting of intermediate stops during the shipment.

In-transit procedures were also evaluated to determine licensee compliance with 10 CFR 73.37, Physical Protection Requirements of Irradiated Fuel In-Transit. The inspectors reviewed protection provided for the irradiated fuel when it was removed from the shipper's Protected Area (PA) and when it was placed into the PA of the recipient. The inspectors also reviewed to verify that a communications center monitored the progress of the shipment. Licensee security practices and escort procedures were also evaluated throughout the shipment. The following procedures were reviewed for compliance with regulatory requirements:

-Nuclear Generating Group Standard Procedure NGGM-PM-0006, Spent Fuel Shipping Program Manual
- Brunswick Nuclear Plant Physical Security Plan

b. Findings

No findings of significance were identified.

4OA6 Meetings, including Exit

Exit Meeting Summary

The inspectors presented the inspection results to Mr. Jack Keenan, Site Vice President, and other members of licensee management at the conclusion of the inspection on January 7, 2002. The licensee acknowledged the findings presented.

The inspectors asked the licensee whether any of the material examined during the inspection should be considered proprietary. No proprietary information was identified.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

M. Alford, Emergency Preparedness Supervisor
A. Brittain, Manager Security
D. DiCello, Manager Regulatory Affairs
N. Gannon, Plant General Manager
J. Gawron, Training Manager
W. Dorman, Manager Nuclear Assessment
S. Hamilton, Manager of Environmental & Radiation Control
D. Holder, Superintendent of Environmental & Radiation Control Technical Support
J. Keenan, Site Vice President
E. O'Neil, Manager Site Support Services
J. Lyash, Director of Site Operations
J. Franke, Manager Brunswick Engineering Support Section
W. Noll, Manager Operations
E. Quidley, Manager Maintenance
H. Wall, Manager Outage and Scheduling
T. Ward, Maintenance Rule Coordinator

NRC

B. Bonser, Chief, Reactor Projects Branch 4

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Opened and Closed During This Inspection

None

Closed

None

Discussed

None