



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

October 24, 2000

EA 00-224

Florida Power and Light Company
ATTN: Mr. T. F. Plunkett
President - Nuclear Division
P. O. Box 14000
Juno Beach, FL 33408-0420

**SUBJECT: TURKEY POINT NUCLEAR PLANT - NRC INSPECTION REPORT
50-250/00-04, 50-251/00-04**

Dear Mr. Plunkett:

On September 30, 2000, the NRC completed an inspection at your Turkey Point 3 & 4 reactor facilities. The enclosed report documents the inspection findings which were discussed on September 25, 2000, with Mr. R. Hovey 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 NRC identified three issues of very low safety significance (Green). Two of these 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 deny these non-cited violations, you should provide a response with the 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 II; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington DC 20555-0001; and the NRC Resident Inspector at Turkey Point Nuclear Plant.

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/

Leonard D. Wert, Chief
Reactor Projects Branch 3
Division of Reactor Projects

Docket Nos. 50-250, 50-251
License Nos. DPR-31, DPR-41

Enclosure: Inspection Report 50-250/00-04, 50-251/00-04
w/attached NRC's Revised Reactor Oversight Process

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U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos: 50-250, 50-251
License Nos: DPR-31, DPR-41

Report No: 50-250/00-04, 50-251/00-04

Licensee: Florida Power & Light Company (FPL)

Facility: Turkey Point Nuclear Plant, Units 3 & 4

Location: 9760 S. W. 344th Street
Florida City, FL 33035

Dates: July 2 - September 30, 2000

Inspectors: C. Patterson, Senior Resident Inspector
J. R. Reyes, Resident Inspector
G. Kuzo, Senior Radiation Specialist (Sections 2OS1 - 2OS3, and
4OA1.2 - 4OA1.3)

Approved by: L. Wert, Chief
Reactor Projects Branch 3
Division of Reactor Projects

Enclosure

SUMMARY OF FINDINGS

IR 05000250-00-04, IR 05000251-00-04 on 07/02-09/30/2000, Florida Power & Light, Turkey Point Nuclear Plant, Units 3 & 4. Findings in flood protection measures, operability evaluations, and other activities (event followup).

The inspection was conducted by the resident inspectors and a regional senior radiation specialist. The inspection identified three Green findings, two of which were non-cited violations. The significance of the findings is indicated by their color (green, white, yellow, red) and was determined by the Significance Determination Process (see attachment, NRC's Revised Reactor Oversight Process).

Cornerstone: Mitigating Systems

- Green. A Non-Cited violation of 10 CFR 50.65 (b)(2) was identified because residual heat removal pump room and heat exchanger room sump level alarm switches were not included in the scope of the maintenance rule monitoring program. The switches were not periodically checked and some were not functional when they were subsequently tested.

The failure to include the switches in the maintenance rule program was determined to be of very low safety significance. Although the alarm switches could affect the response to an internal flooding incident, the potential impact on accident mitigating systems was limited. The sump pumps located in the rooms that had inoperable level alarm switches were verified to be operable. No credible postulated flooding incidents were identified which could impact both residual heat removal trains simultaneously. (Section 1R06)

- Green. The 4B high head safety injection pump became inoperable because of nitrogen gas leakage from the safety injection accumulators into the pump. Corrective actions for previous similar incidents did not prevent this problem.

The finding was determined to be of very low safety significance. Although the licensee's corrective actions for previous similar instances of gas intrusion did not prevent this occurrence, the duration and the extent of the condition was limited by the licensee's corrective actions. Technical Specifications allow a single pump to be out of service for 30 days and the 4B pump was inoperable for only a very small fraction of that time. Only one high head safety injection pump from each unit (of the four pumps) is required for accident mitigation. (Section 1R15)

- Green. A Non-Cited violation of 10 CFR 50, Appendix B, Criterion III was identified because the licensee did not correctly implement valve position indication circuitry design requirements on six containment isolation valves.

The finding was of very low safety significance because the safety function of the valves was not affected. The condition involved only the valve position indications. The licensee's design control program has changed significantly since the time that this noncompliance occurred. This issue was identified through good questioning by an operator. (Section 4OA3)

Report Details

Summary of Plant Status:

Unit 3 operated continuously at power during this period and has been online since November 18, 1999. Unit 4 operated continuously until the unit was shutdown on September 25, 2000, for a scheduled refueling outage. Unit 4 had been online since January 27, 2000.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity (Reactor-R), Emergency Preparedness (EP)

1R01 Adverse Weather Protection

a. Inspection Scope

The inspectors reviewed the licensee's preparations for the approach of hurricane Debby during the period of August 21-23, 2000. The inspectors verified actions such as testing of the emergency diesel generators (EDG), securing loose equipment, and preparations for emergency staffing were completed as required by plant procedures O-EPIP-20106, Natural Emergencies; and O-ONOP-103.3, Severe Weather Preparations. On August 24, 2000, the hurricane dissipated and the licensee resumed normal plant activities.

b. Findings

No findings of significance were identified.

1R04 Equipment Alignment

a. Inspection Scope

The inspectors verified, by partial walkdown inspections, the alignment of redundant trains/systems when the other train/system was out-of-service. The inspectors reviewed the licensee's flow path verification procedures, Updated Final Safety Analysis Report (UFSAR) system description, and system drawings to determine the system was correctly aligned.

- 3A Containment Spray Pump while 3B was out of service for surveillance testing
- 4A Residual Heat Removal (RHR) Pump while 4B was out of service for pump seal replacement.
- B and C Auxiliary Feedwater (AFW) Pumps while the A was out of service because of failure to reach rated speed when started.

b. Findings

No findings of significance were identified.

1R05 Fire Protection

a. Inspection Scope

The inspectors toured areas important to safety to observe fire protection detection and suppression equipment operational status, control of transient combustible material, and overall material condition. The material condition and operational status of fire barriers were also examined. The inspectors reviewed procedures 0-ADM-016.3, Fire Protection Impairments, 0-ADM-016, Fire Protection Program, and 0-ADM-016.1, Transient Combustible and Flammable Substances Program, and verified compliance with procedural requirements. The following areas were inspected

- Cable Spreading Rooms
- Units 3A and 3B Diesel Generator rooms
- Units 4A and 4B Diesel Generator Rooms
- Units 3A and 3B Fuel Oil Storage Tank Rooms
- Units 4A and 4B Fuel Oil Storage Tank Rooms

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures

a. Inspection Scope

The inspectors reviewed the plant drainage and pumping system provided for the protection of risk-significant structures, systems, and components, from flooding. The condensate pump bay, yard drainage, and auxiliary building drainage system were reviewed.

b. Findings

A Non-Cited violation was identified because residual heat removal pump room and heat exchanger room sump level alarm switches were not included in the scope of the maintenance rule monitoring program. The switches were not periodically checked and some were not functional when they were subsequently tested.

During the review of the RHR pump room drainage system, the status of testing of the RHR rooms sump level alarm switches was questioned. Condition Report (CR) 00-1082 was written to address this issue. Each unit has two sump pumps in both of the RHR pump rooms and in the RHR heat exchanger room. Each sump pump has a 75 gallons per minute capacity. The sump level alarm switch provides an alarm in the control room on high sump level. This alarm would inform the operators that the sump pumps were not removing the water from the RHR room as fast as it was entering the room. The licensee tested each of the level alarm switches and the sump pumps. The following equipment was found inoperable:

- Unit 3 Both sump pumps in the 3A RHR pump room (high level alarm was functional)
- Unit 3 Alarm level switch in the RHR heat exchanger room (sump pumps were operable)
- Unit 4 Alarm level switch in 4A RHR pump room (sump pumps were operable)

CR 00-1236 was written to address the inoperable RHR sump pumps. The licensee determined that the sump pumps are tested periodically by procedure 0-PMM-061.1, Auxiliary Building Floor, Radiology Building Floor and Containment Building Roof Drains Inspection and Cleaning. However, the alarm level switches had not been periodically tested.

The RHR room sump equipment design basis is described in several places in the Turkey Point UFSAR. Section 5F, Internal Flooding, states that the sump level alarms are powered from vital service and alarm in the control room. Water entering the rooms would be pumped out by the sump pumps or the alarm actuates alerting the operators. Section 6.2, Recirculation Loop Leakage, describes the system operation due to a leak. Section 6.5 discusses an estimated 50 gallons per minute leak from a RHR pump seal failure.

The licensee's maintenance rule expert panel met on September 1, 2000, and discussed the disposition of CRs 00-1236 and 00-1082. The sump level alarm switches are powered from a vital source and provide positive indication of flooding in a pump or heat exchanger room. The expert panel decided to add the switches to the scope of the maintenance rule since they were non-safety related structures, systems, and components (SSC) that could prevent a safety-related SSC from fulfilling its safety-related function.

10 CFR 50.65 (b) (2) requires that non-safety related SSCs whose failure could prevent a safety-related SSC from fulfilling its safety-related functions be scoped in maintenance rule and be monitored in accordance with the program specified in 10 CFR 50.65 (a) (1). Paragraph (a)(1) requires monitoring the performance of SSCs in a manner sufficient to provide reasonable assurance that such SSCs are capable of fulfilling their intended function. The RHR room sump level alarm switches were not identified as being in scope and were not being monitored in the licensee's maintenance rule program. The licensee determined that the switches could prevent a safety-related SSC from fulfilling its safety-related function. This is a violation of 10 CFR 50.65 (b)(2). This condition has existed since July 1, 1996, the maintenance rule implementation date.

The safety significance of this issue was reviewed. The level alarm switches had not been tested and subsequent testing identified that two switches were inoperable. While the overall issue does have a credible impact on safety, the actual sump pump and alarm switch conditions that were found limited the safety implications regarding operability of the RHR systems. Only the mitigating systems cornerstone was affected. Although the sump pumps and the alarms affect the ability to mitigate an internal flooding incident, their operability does not impact the probability of a flooding incident. Additionally, the inspector's review did not identify any single postulated incidents which could impact both RHR trains. The inspectors also reviewed the licensee's Probabilistic Safety Assessment (PSA) concerning internal flooding. Flooding in RHR rooms does

not contribute to an initiating event. Furthermore, the PSA indicates that there is no credible internal flooding event that could cause a significant increase in risk. This issue was determined to be of very low safety significance. There have been no documented failures of RHR components at Turkey Point due to flooding.

Because the violation is of very low safety significance and has been entered into the licensee's corrective action program (CRs 00-1082 and 00-1236), this finding is considered a Non-Cited Violation (NCV) in accordance with Section VI.A.1 of the NRC Enforcement Policy. The finding is identified as NCV 50-250, 251/00-04-01; Failure to Have RHR Room Sump Level Switches in the Maintenance Rule.

1R11 Licensed Operator Requalification

a. Inspection Scope

The inspectors observed simulator training for Senior Reactor Operators and Reactor Operators. Exercise guide # 760200106, Reactor Startup With Nuclear Instrumentation System Failure, was observed. The inspectors assessed operator performance and observed the evaluator's critique.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation

a. Inspection Scope

The inspectors assessed the effectiveness of the licensee's maintenance efforts that apply to structures, systems, and components scoped into the maintenance rule, and verified procedural requirements specified in procedure 0-ADM 728, Maintenance Rule Implementation. The inspector reviewed the characterization of failures, safety significance classifications, and the appropriateness of performance criteria and corrective actions. Seven performance problems were inspected. The equipment problems reviewed were:

- CR 00-1082 RHR Sump Level Switches
- CR 00-1236 RHR Sump Pumps
- CR 00-1332 3D Normal Containment Cooler
- CR 00-1336 AFW Pump Failure To Reach Rated Speed
- CR-00-1351 4A EDG Failure To Start
- CR 00-1018 Supp 1 'A' AFW Trip & Throttle Valve
- CR 00-1415 U3 Diesel Instrument Air Compressor Failure To Start

(Section 1R06 describes additional details of the RHR room sump pumps and level alarm issues.)

b. Findings

No findings of significance were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control

a. Inspection Scope

The inspectors reviewed the following emergent items, as described in the referenced CRs or work orders (WOs). The inspectors verified that the emergent work activities were adequately planned and controlled, as described in 0-ADM-210, On-Line Maintenance/Work Coordination. The inspectors verified that, as appropriate, contingencies were in place to reduce risk, minimize time spent in increased risk configurations, and to avoid initiating events.

- CR-00-1207 Operator Workaround Due To High Intake Cooling Water (ICW) Temperatures
- CR-00-1291 Control Room Heating, Ventilation, and Air Conditioning (HVAC) Inoperable Condenser
- CR-00-1372 AFW Pump Recirculation Line Leak
- CR-00-1388 4B High Head Safety Injection (HHSI) Pump Gas Binding
- CR-00-1387 3B EDG Speed Control Failure During Monthly Surveillance Test
- CR-00-0758 4B RHR Pump Seal Replacement
- CR-00-1351 4A EDG Failure To Start

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations

a. Inspection Scope

The inspectors reviewed selected operability evaluations affecting mitigating systems and barrier integrity to determine that operability was justified and no unrecognized increase in risk had occurred. The inspectors verified procedural requirements as described in 0-ADM-518, Condition Reports. The evaluations reviewed were as follows:

- CR-00-1085 Unit - 3 Turbine Control Oil/Delay of Intercept Valve Testing Until Outage.
- CR-00-1230 Unit - 3 3A RHR Pump Room Sump Pumps Inoperable
- CR-00-1351 Unit - 4 4A EDG Failure To Start
- CR-00-1472 Unit - 3 3A EDG Failure To Start
- CR-00-1387 Unit - 3 3B EDG Speed Control Failure During Monthly Surveillance
- CR-00-1291 Common Control Room HVAC Inoperable Condenser

- CR-00-1248 Common 480-Volt Switch Gear Under-Voltage Test
- CR-00-1095 Common Containment Phase A lights
- CR-00-1372 Common 'A' AFW Recirculation Line

The inspectors reviewed the licensee's activities in response to the 4B high head safety injection (HHSI) pump failing to develop discharge pressure when it was started on August 16, 2000, for a routine evolution (filling a nitrogen accumulator). The inspectors reviewed the licensee's investigative activities and evaluations supporting operability of the HHSI system in detail. The inspectors also reviewed the licensee's corrective actions for the problem.

b. Findings

The 4B high head safety injection pump became inoperable because of nitrogen gas leakage from the safety injection accumulators into the pump. Corrective actions for previous similar incidents did not prevent this problem.

In the last few years, there have been a number of problems with gas intrusion into the HHSI system at Turkey Point. The licensee has completed several reviews of the problem and initiated extensive corrective actions. The licensee's actions have included short term measures such as frequent system venting and pump operations. During a recent refueling outage, a small line that was no longer required was cut and capped so that it would not provide a flowpath for the nitrogen. Maintenance activities were conducted on several isolation valves in the flowpath but this work was not specifically performed to address the gas binding issue. In spite of these actions, a new leakage path developed which resulted in nitrogen gas intrusion from the accumulators past several normally closed safety injection cold leg isolation valves into the 4B HHSI pump. The licensee documented this latest instance in CR 00-1388. Repairs scheduled for the next refueling outage include more work on the cold leg isolation motor operated valves and repair/replacement of other small valves. Additionally, the licensee plans to conduct testing of potential leakage paths to verify that the leakage paths do not exist at the end of the outage.

The issue of HHSI gas binding has been reviewed during several NRC inspections as documented in NRC inspection Reports 98-13, 99-3, and 00-07. No findings of significance have been identified by the NRC associated with the licensee's corrective actions. A recent third party review recommended additional actions for resolution of the problem.

After the failure on August 16, 2000, the licensee vented the pump and increased the venting frequency. After additional review, an additional small valve in the back leakage path was isolated. The inspectors verified that there was no evidence of gas binding in the other HHSI pumps. While the licensee's actions did not prevent inoperability of the HHSI pump, the previously implemented testing and venting measures limited the duration of potential problems. Testing of the other HHSI pumps verified that they were not affected and the 4B pump was promptly restored (within one day) to an operable condition. The inspectors concluded that no NRC regulatory requirements were violated.

Although the failure of a HHSI pump has some significance and this was not an isolated failure, the duration and the extent of the problem was sharply limited by the licensee's corrective actions for previous instances. The mitigating system cornerstone was affected, however, this instance represented a condition of very low safety significance. Technical Specifications (TS) allow a single HHSI pump to be out of service for 30 days. The 4B pump was inoperable for less than a day. Each time that a HHSI pump inoperability has occurred due to gas binding, it has always been the 4B pump and no other pumps were affected. The inspector's reviews of the UFSAR indicated that only a single HHSI pump from each unit is required for accident mitigation. Accordingly, this issue is classified as a green finding.

1R16 Operator Workarounds

a. Inspection Scope

The inspectors reviewed selected operator workarounds to determine if the functional capability of the system or human reliability in responding to an initiating event was affected. Additionally, the inspectors reviewed the cumulative effects of Operator Workarounds. The inspectors observed that hot weather conditions periodically necessitated operator actions. The operators reduced main generator reactive loading and completed other actions involving the ICW and component cooling water systems. The inspectors verified that the operator workaround aspects of the hot weather actions were addressed in Condition Report 00-1207.

b. Findings

No findings of significance were identified.

1R17 Permanent Plant Modifications

a. Inspection Scope

The inspectors verified that plant modifications performed while the unit was online did not place the unit in an unsafe condition. The inspectors reviewed Plant/Change Modification 00-019, Containment Isolation Air Sample Valves Indication Modification, and observed that the wiring changes were properly made.

b. Findings

No findings of significance were identified.

1R19 Post-Maintenance Testinga. Inspection Scope

For the post-maintenance tests listed below, the inspectors reviewed the test procedure and either witnessed the testing and/or reviewed test records to determine whether the scope of testing adequately verified that the work performed was correctly completed and demonstrated that the affected equipment was functional and operable.

- 0-OSP-046.1 Boric Acid Transfer Pumps Inservice Test
- WO 30014445 -01 Control Room HVAC
- WO 30014883 Replace Auxiliary Feed Pump Governor
- 4-OSP-023.1 Operability Test 4A EDG
- 3-OSP-206.4 Inservice Valve Testing / Refueling
- 4-OSP-050.2 4B RHR Pump Inservice Test
- WO 30006905 Replace Mechanical Seal on the 4B RHR pump

b. Findings

No findings of significance were identified.

1R22 Surveillance Testinga. Inspection Scope

The inspectors verified by witnessing surveillance tests and/or reviewing test data, that the selected testing met the TS, the UFSAR, and licensee procedure requirements and demonstrated the SSCs were capable of performing their intended safety functions. The inspectors observed/reviewed the following surveillances:

- 3-OSP-049.1 Reactor Protection System Logic Test, Train B
- 3-SMI-067.1 Unit 3 Spent Fuel Pool Vent Analog Test
- 3-SMM-016.9 Startup Transformer Fire Suppression System 18 Month Functional Test
- 3-SMI-067.1 Unit 3 Spent Fuel Pool Vent Analog Test
- 0-OSP-075.11 A AFW Inservice Test
- 0-OSP-016.23 Diesel Driven Fire Pump Operability Test
- 0-OSP-202.3 Safety Injection Pump and Piping Venting

b. Findings

No findings of significance were identified.

1R23 Temporary Plant Modifications

a. Inspection Scope

The inspectors reviewed temporary modifications to verify that the modification did not affect the safety function of risk significant systems, the modification was installed as required by plant documents, and the 10 CFR 50.59 screening evaluations appropriately considered UFSAR information. The inspectors reviewed the installed modification against drawings and verified the impact on plant procedures had been evaluated.

- TSA 00-04 Control Room Indication of Excite Hot Gas Temperature Points
- TSA 00-02 Installation of Electronic Device Plant Page Stations
- TSA 99-07 Gas Transfer Membrane Deaerator

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation

a. Inspection Scope

The inspectors observed performance of a quarterly emergency preparedness drill on August 29, 2000 in the Technical Support Center and Control Room Simulator. The inspectors verified that classification of the emergency was conducted in accordance with the licensee's emergency plan. The drill critique was attended to verify that deficiencies were identified and addressed.

b. Findings

No findings of significance were identified.

2. **RADIATION SAFETY**

Cornerstone: Occupational Radiation Safety (OS)

2OS1 Access Control to Radiologically Significant Areas

a. Inspection Scope

The inspectors reviewed radiological access controls and verified their implementation for "at power", Unit 3, "D" Normal Containment Cooler on-line maintenance work. The work was conducted in accordance with Radiation Work Permit (RWP) 00-0308, Unit 3 (U3) Containment - Power Entry (Very High Radiation Area/Locked High Radiation Area), Inspect, Troubleshoot, and Repair Normal Containment Coolers and Support Work, dated August 7, 2000. In addition, radiological controls associated with the Unit 3 and Unit 4 RHR pump and heat exchanger equipment locations were reviewed and evaluated during the week of September 11, 2000.

The reviews included administrative and engineering controls for high radiation, locked-high radiation, and very high radiation areas. Pre-job briefings, work-in-progress, and Health Physics (HP) technician job coverage were observed. Personnel dosimetry results and exposure investigation reports were reviewed and discussed in detail. Licensee activities were reviewed against UFSAR, TS, and 10 CFR Part 20 requirements.

b. Findings

No findings of significance were identified.

2OS2 "As Low As Reasonably Achievable" Program Planning and Controls

a. Inspection Scope

Licensee "As Low As Reasonably Achievable" (ALARA) Review Board Meeting minutes, radiation survey data, collective exposure trends, and worker performance for the U3 "D" Normal Containment Cooler (NCC) and Unit 4, A RHR pump maintenance activities were reviewed and discussed. In addition, auxiliary building source term data trends, and ALARA work planning, estimated dose expenditures, and proposed dose reduction initiatives for the Fall 2000, U4 refueling outage high dose-rate and high person-rem exposure activities were reviewed and discussed. Planning and preliminary collective dose estimates for the following RWPs were discussed in detail:

- RWP 00-4075, U4 Containment, Steam Generator Eddy Current/Remote Tube Plugging/ HP Surveys/ and Install/Remove Nozzle Covers.
- RWP 00-4050, U4 Containment, All Reactor Coolant Pump Work
- RWP 00-4077, U4 Containment, Steam Generator Sludge Lance and Bundle Flush (Secondary Side) Including Support Work
- RWP 00-4011, U4 Containment, Remove/Repair/Replace/ Re-pack Valves or Flanges.
- RWP 00-4136, Detension/ Remove/ Clean/Install/Tension Reactor Head Studs/ Guide Studs/ Stud Hole Plugs.

Licensee guidance for monitoring declared pregnant females and its subsequent implementation since January 1, 2000, was reviewed and discussed.

Reviewed guidance documents and their implementation was reviewed against UFSAR, TS, and 10 CFR Part 20 requirements.

b. Findings

No findings of significance were identified.

2OS3 Radiation Monitoring and Protection Equipment

a. Inspection Scope

Availability and operability of personnel radiation survey instruments, “fast-scan” whole-body counting equipment, and area radiation monitors were evaluated. During the week of August 21, 2000, calibration and performance checks for portable radiation monitoring instruments used to monitor radiation fields during U3 “D” NCC maintenance activities were verified. Calibration and response check data were reviewed for neutron detector, model ASP1; ion chambers, models RO2 and RO2A; and selected telescan detectors. The inspectors directly observed calibration of a personnel contamination monitor (PCM) 1B at the dress-out area, and reviewed and discussed calibration data for the small article monitors and PCM 1Bs maintained at either the Radiation Control Area (RCA) access/egress or dress-out locations. Calibration data and selected alarm set-points for the following area radiation and high-range containment monitors were reviewed and discussed in detail:

- RD-4 1406, Incore Instrumentation - Unit 4
- RD-4 1408, Spent Fuel Pit Transfer Canal - Unit 4
- RD-4 1422, Spent Fuel Pit South Wall, Unit 4
- RD-20, RCS Let Down Area Monitor, Unit 3
- RAD-3-6311A, Containment High Range Monitor, Channel A, Unit 3

The following procedures were reviewed and discussed with licensee representatives during the review:

- 0-HPT-013, Portable Survey Instruments, dated October 25, 1998,
- 0-HPT-014.6 Calibration and Operation of the Health Physics Wholebody Counting Equipment, dated June 1, 1999.
- 0-PMI-066.2, Area Radiation Monitoring System Channel Calibration, dated April 5, 2000
- 3-PMI-066.3, Containment HI Range Radiation Monitoring System Channels 6311A/B Calibration, dated October 12, 1998
- 3-PMI-067.7, Process Radiation Monitoring System Channel R-3-20 Calibration Procedure, dated October 17, 1997

The licensee’s respiratory protection program activities for use of self-contained breathing apparatus (SCBA) by workers entering airborne radiation areas or areas categorized as immediately dangerous to life and health (IDLH) were reviewed and evaluated.

The inspectors toured the licensee’s air bottle refill station, and selected storage and emergency respirator equipment lockers. Respiratory equipment available in the control room was inspected. Control room operators and other emergency response personnel were interviewed to assess the adequacy of the licensee’s training and qualification program for workers potentially required to use SCBA equipment.

The following procedures associated with the respiratory protection program were reviewed and discussed:

- O-ADM-041, PTN Respiratory Protection Plan, dated February 3, 2000
- O-ADM-360, Health Physics Department Personnel Training and Qualifications, dated January 22, 1998
- O-ADM-600, Radiation Protection Manual, dated February 3, 2000
- O-HPS-038.1, Personnel DAC-hour Tracking, dated October 5, 1998
- O-HPS-022, Airborne Contamination Surveys, dated April 28, 1999
- O-HPA-031, Personnel Monitoring of Internal Dose, dated December 2, 1994
- O-HPS-063.3, Cleaning, Inspection, and Repair of Respiratory Protection Equipment, dated October 4, 1999
- O-HPS-063.2, Accountability and Inventory Control of Respiratory Protection Equipment, dated June 11, 1998
- O-HPS-061.7, Operation and Maintenance of The Portable Breathing Air Filtration System, dated June 6, 1998
- O-HPA-071, ALARA Job Reviews, dated August 24, 1999
- O-SMM-101.1, Grade D Breathing Air and Instrument Air Periodic Testing, dated June 9, 1998

Condition reports, plant management action items, and self-assessment report (HP 00-03) associated with the respiratory protection program were reviewed to assess the licensee's ability to identify, characterize, prioritize, and resolve respiratory protection issues.

The program was evaluated against the licensee's UFSAR, TS, procedural requirements, as well as Information Notices 98-20 and 99-05. Additionally, compliance with 10 CFR 20, Subpart H, Respiratory Protection and Controls to Restrict Internal Exposure in Restricted Areas, and 10 CFR 20, Appendix A, Assigned Protection Factors for Respirators, was verified.

b. Findings

No findings of significance were identified.

4 OTHER ACTIVITIES

4OA1 Performance Indicator Verification

.1 Reactor Safety Quarterly Performance Indicator Verification

a. Inspection Scope

The inspectors verified PIs for accuracy. To verify the PI data, the inspectors reviewed monthly operating reports, licensee events reports, control room logs, plant procedure O-ADM - O32, NRC Performance Indicators, and Nuclear Energy Institute document 99-02, "Regulatory Assessment Performance Indicator Guidelines." The following three PIs were specifically verified for the second quarter of 2000:

Cornerstone

PI

Initiating Events	Unplanned Scrams Per 7,000 Critical Hours
Initiating Events	Scrams With a Loss of Normal Heat Removal
Mitigating Systems	Safety System Functional Failures

b. Findings

No findings of significance were identified.

.2 Occupational Radiation Safety Performance Indicator Verification

a. Inspection Scope

The inspectors verified the Occupational Exposure Control Effectiveness performance indicator for the Occupational Radiation Safety Cornerstone through September 15, 2000. The inspectors reviewed data reported to the NRC, and sampled and evaluated applicable Corrective Action Program Condition Reports and selected Health Physics Program records. The reviewed records included exposure investigation reports, internal exposure evaluations, skin dose assessments, and iodine exposure data.

b. Findings

No findings of significance were identified.

.3 Public Radiation Safety Performance Indicator Verification

The inspectors verified the Radiological Control Effluent Release Occurrences performance indicator for the Public Radiation Safety Cornerstone through August 31, 2000. The inspectors reviewed data reported to the NRC and evaluated applicable Corrective Action Program Condition Reports and selected Effluent Program records associated with liquid and gaseous effluent releases, process radiation monitor operation, and abnormal release results.

b. Findings

No findings of significance were identified.

4OA3 Event Follow-up

(Closed) LER 50-250,251/00-003-00: Incorrect Limit Switch Wiring Design Of Containment Isolation Solenoid Valves. Indicating light circuits of six containment isolation solenoid valves (three on each unit) associated with air sample lines were not in accordance with Regulatory Guide 1.97 for accident monitoring instrumentation, or the indication circuitry as described in the UFSAR. The actual position indication was designed and wired to provide Open/Not Open indication, rather than the Open/Closed indication as stated in the UFSAR, or the Closed/Not Closed indication described in Regulatory Guide 1.97. This condition could cause the valve to indicate closed when

the valve may be in the intermediate position. Close indication is used in the emergency operating procedures (EOP-E0) to verify containment isolation phase A. Three additional containment valves were identified to have the indication circuitry incorrectly wired. The design of the indication circuitry for these valves was correctly described in the drawings but had not been implemented properly.

The Reactor Operator that identified this issue had a good questioning attitude when he discerned that the valves would indicate closed prior to the valve being fully closed. The licensee conducted extensive testing and reviews to determine the extent of the condition. The licensee identified human error as the root cause of these issues and indicated that the deficiencies occurred in early 1970's. Corrective actions included implementation of a plant modification to the six solenoid valves' limit switch wiring to address the design issue, and actions to correct the wiring on the other three valves. The inspectors reviewed the modification package and observed the post maintenance test on the solenoid valves.

The inspectors concluded that the safety significance of this design issue and miswiring was minimal. The deficiencies only affected the indication of the valves' position, and did not affect the valve's safety function, (ability to close on a containment isolation signal), in any way. The inspectors noted that these solenoid operated valves are associated with the containment sampling monitoring system, are located in small diameter piping, and close very quickly. There have not been any issues with failure of the valves to isolate. These valve position indication issues involved NRC regulatory requirements, not licensee administrative limits. Since the deficiencies affected only one of the two isolation valves for each of the involved containment penetrations, the containment isolation function would still be accomplished even if one valve failed to fully shut but indicated fully shut. The issues affected only the mitigating systems cornerstone and were determined to be of very low safety significance and characterized as Green by the SDP.

Part 50, Appendix B, Criterion III, Design Control, of the Code Of Federal Regulations, requires in part that measures shall be established to assure that applicable regulatory requirements and design basis for those structures, systems, and components are correctly translated into specifications, drawings, procedures, and instructions. Additionally, the measures shall include provisions to assure that appropriate quality standards are specified and included in design documents and that deviations from such standards are controlled. The licensee failed to implement close indication circuitry design requirements on six valves, as described in Regulatory Guide 1.97 and the UFSAR, and failed to properly implement close indication circuitry requirements on three valves as depicted plant design drawings. The design deficiency apparently occurred during original design activities. Because the violation is of very low safety significance and has been entered into the licensee's corrective action program (CR 00-1299), this finding is considered a Non-Cited Violation in accordance with Section VI.A.1 of the NRC Enforcement Policy. The finding is identified as NCV 50-250,251/00-04-02; Incorrect Design for Valve Position Indication Of Containment Isolation Valves. This LER is closed.

40A5 (Closed) Temporary Instruction (TI) 2515/144: Performance Indicator Data Collecting and Reporting Process Review

a. Inspection Scope

The inspectors reviewed the licensee’s Performance Indicators (PI) data collecting and reporting process to determine whether the NRC/industry guidance being implemented properly. The inspectors reviewed plant procedure 0-ADM-032, NRC Performance Indicators, Calculation Methods, and Nuclear Energy Institute 99-02, “Regulatory Assessment Performance Indicator Guideline”, for the following five indicators:

<u>Cornerstone</u>	<u>PI</u>
Initiating Events	Unplanned Power Changes per 7,000 Critical Hours
Mitigating Systems	Safety System Unavailability, Emergency A/C Power System
Emergency Preparedness	Emergency Response Organization Drill Participation
Occupational Radiators Safety	Occupational Exposure Control Effectiveness
Public Radiation Safety	Protected Area Security Equipment Performance Index

As a result of an industry review, the fourth quarter 1998 data for the 3A EDG safety system unavailability was revised to include fault exposures hours due to a radiator leak. This affected data from the fourth quarter 1998 to the present. The indicator color remained green.

b. Findings

No findings of significance were identified.

4OA6 Management Meetings

Exit Meeting Summary

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on September 25, 2000. 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

D. Lowens, Quality Assurance Manager
 S. Franzone, Licensing Manager
 R. Hovey, Site Vice-President
 D. Jernigan, Plant General Manager
 T. Jones, Operations Manager
 J. Kirkpatrick, Protection Services Manager
 M. Lacal, Training Manager
 G. Hollinger, Work Control Manager
 R. Rose, Maintenance Manager
 E. Thompson, License Renewal Project Manager
 D. Tomaszewski, Site Engineering Manager
 J. Trejo, Health Physics/Chemistry Supervisor
 A. Zielonka, System Engineering Manager

Other licensee employees contacted included office, operations, engineering, maintenance, chemistry/radiation, and corporate personnel.

NRC

L. Wert, Chief Reactor Projects Branch 3

ITEMS OPENED, CLOSED, AND DISCUSSEDOpened and Closed

250,251/00-04-01	NCV	Failure to Have RHR Room Sump Level Switches in the Maintenance Rule (1R06).
250,252/00-04-02	NCV	Incorrect Design for Valve Position Indication Of Containment Isolation Valves (4OA3).

Closed

250,251/00-003-00	LER	Incorrect Limit Switch Wiring Design of Containment Isolation Solenoid Valves (4OA3).
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Temporary Instruction (TI) 2515/144:

Performance Indicator Data Collecting and Reporting Process Review (4OA5).

NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety

- Initiating Events
- Mitigating Systems
- Barrier Integrity
- Emergency Preparedness

Radiation Safety

- Occupational
- Public

Safeguards

- Physical Protection

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, and RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance

(as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.