

U. S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos.: 50-348 and 50-364

License Nos.: NPF-2 and NPF-8

Report Nos.: 50-348/98-07 and 50-304/98-07

Licensee: Southern Nuclear Operating Company, Inc.

Facility: Farley Nuclear Plant, Units 1 and 2

Location: 7388 N. State Highway 95
Columbia, AL 36319

Dates: October 18 to November 28, 1998

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Enclosure

EXECUTIVE SUMMARY
FARLEY NUCLEAR POWER PLANT UNITS 1 and 2
Nuclear Regulatory Commission Inspection Report 50-348,364/98-07

This integrated inspection to assure public health and safety included aspects of licensee operations, maintenance, engineering, and plant support. The report covers a six-week period of inspection by Resident Inspectors and a regional Senior Project Engineer. In addition, this report includes regional announced inspections of radiation protection, steam generator testing, and inservice inspection.

Operations

- The licensee's initial review of the Penetration Room Filtration system licensing basis did not fully consider the scope of expected plant conditions. However, corrective actions were taken to resolve the outside of licensing basis condition (Section O2.2).
- Weaknesses relative to the emergency operating procedures' verification and validation, and training programs were identified (Sections O3.1).
- Licensee root cause and corrective actions for Occurrence Reports were thorough and detailed. However, Occurrence Report thresholds were not consistent as evidenced by a lack of report initiation as discussed in procedure FNP-0-AP-30, Preparation and Processing of Incident Reports, Plant Event Reports, and Licensee Event Reports (Section O7.1).
- The inspectors noted good control and oversight of reactor drain down activities, core off load, bus and train outages, and outage testing and maintenance on Unit 1. Shut down safety assessment was performed continually, and outage information was placed throughout the site making personnel aware of unit conditions. Outage meetings were informative and provided management with an excellent communication tool. Shift and operations management maintained excellent oversight of operational related activities (Section O7.2).
- The control room operator's response to an engineered safety system actuation was adequate. However, weaknesses were identified in that the Shift Supervisor was not informed of an automatic start of the system, and the licensee did not determine that the event was reportable (Section O8.2).

Maintenance

- The licensee's steam generator inspections this outage were conducted in a conservative manner. Weaknesses in the area of previous data evaluation were identified by review of data for leaking tubes and were corrected and emphasized during site-specific training for eddy current analysts (Section M1.2).
- The licensee had conservatively and comprehensively planned the Unit 1 Baffle Former Bolt replacement. Personnel involved were knowledgeable of the process, system, and requirements associated with the activity. The inspectors noted that the licensee effectively captured and used "lessons learned" during the evolution (Section M1.3).

- Poor planning and communication resulted in an unnecessary safety equipment outage for the 2A containment spray pump (Section M2.1).

Engineering

- The licensee did not identify an Update Final Safety Analysis Report discrepancy concerning the ability to identify and isolate an emergency core cooling system pump seal failure within 30 minutes on Unit 1 (Section E2.1).

Plant Support

- The licensee was effectively maintaining controls for control of radioactive material, radiological postings, and radiation area/high radiation area controls. Efforts to reduce personnel contaminations were positive (Section R1.2).
- An Emergency Operations Facility outage was well planned and compensatory actions were adequate (Section P2.1).

REPORT DETAILS

Summary of Plant Status

At the beginning of this reporting period, Unit 1 was shut down conducting the cycle 15 refueling outage. The unit continued in the outage during the entire inspection period.

At the beginning of this reporting period, Unit 2 had been on line since May 17. The unit operated at or near full power except for a planned load reduction to 15% power on November 15 to add oil to the 2A reactor coolant pump.

I. Operations

O1 Conduct of Operations

O1.1 Routine Observations of Control Room Operations (71707 and 40500)

The inspectors observed that control room professionalism and communications remained good. Operating crew demeanor, team work and conduct were professional and effective. Operator attentiveness to annunciator alarms and response to changing plant conditions were prompt. The operating crew demonstrated an appropriate level of awareness of existing plant conditions and ongoing plant activities. The inspectors noted two instances, a safety system actuation and an at-power containment entry on Unit 2, were not logged.

The inspectors routinely reviewed the Technical Specification (TS) Limiting Conditions for Operation (LCO) tracking sheets. All tracking sheets for Units 1 and 2 reviewed by the inspectors were consistent with plant conditions and TS requirements.

O1.2 Unit 1 Core Off-load (60710 and 71707)

The inspectors observed Unit 1 core off-load activities on October 24 and 26. Activities observed were performed in a well-controlled and methodical manner in accordance with procedures. Communications between the various stations were clear and concise. Personnel were familiar with the procedure and were knowledgeable with the process and systems. The inspectors concluded that fuel handling activities were accomplished in a professional and competent manner.

O2 Operational Status of Facilities and Equipment

O2.1 General Tours and Inspections of Safety Systems (71707)

General tours of selected safety-related areas were performed by the inspectors to verify the operability of risk significant safety systems and equipment. The Unit 2 service water and component cooling water systems were verified to be properly aligned and maintained by performing a detailed system walkdown. The inspectors verified that selected tagouts were implemented in accordance with procedural requirements.

O2.2 Penetration Room Filtration (PRF) System Operability (71707)

While observing the receipt of new fuel for Unit 1, the inspectors noted that a 4'x4' plug was removed from the Spent Fuel Pool (SFP) ceiling to allow lowering the new fuel assemblies into the SFP. The inspectors questioned the operability of the PRF system because having the plug removed was not within the scope of previous operability testing. The inspectors discussed this issue in detail with both licensee and NRC staff to determine the safety consequence and licensing basis for PRF. The safety consequences were low; however, the NRC staff determined that this configuration was outside the licensing basis for PRF. This determination was based on the failure position of a damper in the PRF suction line to the SFP. The licensee was informed of the NRC's position on November 24 and the licensee promptly made a required four-hour report. The licensee also initiated a plant design change to the damper to address this condition.

The inspectors concluded that the licensee's initial review did not fully consider the scope of expected plant conditions. However, corrective actions were taken to resolve the outside of licensing basis condition.

O3 **Operations Procedures and Documentation**

O3.1 Maintenance of In-Plant Emergency Operating Procedures (EOPs)

a. Inspection Scope (71707)

The inspectors reviewed the licensee's program for Verification and Validation (V&V) of EOPs documented by Administrative Procedure (AP) FNP-0-AP-74, "Development and Maintenance of Emergency Response Procedures," Revision (Rev.) 5.

b. Observations and Findings

During review of the issue discussed in Section O2.2, the inspectors identified that the licensee did not perform a mission dose assessment for PRF post-Loss of Coolant Accident (LOCA) in-plant actions. The inspectors reviewed FNP-0-AP-74 and determined that it did not require V&V of in-plant actions or support procedures.

On August 19, the inspectors identified that a Unit 1 Emergency Core Cooling System (ECCS) pump seal failure could not be identified and isolated within 30 minutes. The licensee issued a change to Emergency Event Procedure (EEP) FNP-1-EEP-1.0, "Loss of Reactor or Secondary Coolant," to provide compensatory operator actions until a design change could be made. The inspectors discussed implementation of the procedure change with three Senior Reactor Operators (SROs) and determined that they were not aware of the change to FNP-1-EEP-1.0. FNP-0-AP-74, Section 7.1 required that training on important minor procedure revisions be conducted through a program of pre shift briefings, required reading (self-taught) or lectures in the retraining program. However, FNP-0-AP-74 did not provide any requirements for timeliness of the training.

These two observations were presented to the operations staff for resolution.

c. Conclusions

The lack of required validation of in-plant operator actions or support procedure actions and failure to specify training timeliness was identified as a program weakness.

O7 Quality Assurance in Operations

O7.1 Effectiveness of Licensee Control in Identifying, Resolving, and Preventing Problems (40500)

The inspectors reviewed procedure FNP-0-AP-30, "Preparation and Processing of Incident Reports, Plant Event Reports, and Licensee Event Reports," Rev. 24, seven selected Occurrence Reports (ORs) and one Root Cause Analysis Report to assess licensee performance.

The ORs reviewed were correctly classified for the level of significance and were thorough and detailed. The Root Cause Analysis Report identified the root cause of the problem and contributing causes. Recommended corrective actions were appropriate based upon significance. The inspectors noted that OR threshold was not consistent as evidenced by a lack of report initiation as discussed in FNP-0-AP-30.

O7.2 Outage Risk Assessment (60710 and 40500)

The inspectors reviewed and evaluated selected portions of the licensee's conduct of the Unit 1 cycle 15 refueling outage relative to nuclear safety and shut down risk. The inspectors noted good control and oversight of reactor drain down activities, core off load, bus and train outages, and outage testing and maintenance. Shut down safety assessment was performed continually, and outage information was placed throughout the site making personnel aware of unit conditions. Outage meetings were informative and provided management with an excellent communication tool. Shift and operations management maintained excellent oversight of operational related activities.

O8 Miscellaneous Operations Issues

O8.1 (Closed) Inspection Followup Item (IFI) 50-348, 364/98-04-01: Multiple Tagorder Implementation Errors (92901)

The licensee provided group training for operations and maintenance personnel, specific training for individuals involved in the errors, and more clearly defined job responsibilities for the tagging group. The inspectors reviewed six prepared tagorders and verified that they were satisfactory for the intended job scope. The inspectors walked down selected portions of three tagorders and verified that the switches and components were in their required position. No deficiencies were identified. Based upon the inspectors review of licensee actions, this item is closed.

O8.2 (Closed) Licensee Event Report (LER) 50-348/98-05-00: Auto Start of B Train of Penetration Room Filtration Due to Filling the Spent Fuel Transfer Canal (92700)

On October 21, during transfer of water to the Fuel Transfer Canal in the Unit 1 Spent Fuel Pool (SFP), the SFP area became airborne and resulted in a valid actuation of the B train PRF. The inspectors observed that the operators referred to the annunciator response procedures and promptly completed the required steps. Approximately three minutes after the PRF initiation, SFP normal ventilation was restarted and PRF was secured.

The inspectors reviewed the operator's logs and noted that the event had not been documented. This was discussed with the operator who then entered it into the logs. The inspectors asked the operators if the Shift Supervisor (SS) was aware of the event because he was not in the area during the response. The operators then discussed the event with the SS who did not know that PRF had automatically actuated.

Approximately one hour after the event, the inspectors contacted the SS to determine what actions were being taken in response to the automatic start of the PRF system. The SS stated that an OR had been written to document the event. The SS also stated that the event was not reportable per 10 CFR 50.72. However, the SS discussed the event with senior licensee management and a subsequent determination was made that the event was reportable.

The inspectors concluded that the control room operator's response to the event was adequate. However, weaknesses were identified in that the SS was not informed of an automatic start of an ESF system and the SS initially determined the event was not reportable.

II. Maintenance

M1 Conduct of Maintenance

M1.1 General Comments (61726 and 62707)

The inspectors witnessed or reviewed portions of selected maintenance and surveillance test activities in progress. Unit 1 refueling related activities, including reactor vessel disassembly were reviewed. For those maintenance and surveillance activities observed or reviewed, the inspectors determined that the activities were conducted in a satisfactory manner and that the work was properly performed in accordance with approved maintenance work orders. The inspectors also determined that the observed activities were performed in a satisfactory manner and met the TS requirements.

M1.2 Steam Generator (SG) Inspections - Unit 1 (Closed) LER No. 98-002-00: Steam Generator Tube Leakage, Investigation, Repair and Evaluation)

a. Inspection Scope (50002, 90712, 92700)

The inspectors reviewed eddy current test (ET) data acquisition, management, and evaluation activities, and reviewed ET data.

b. Observations and Findings

During operating cycle 15, starting in June 1997, Unit 1 experienced a small amount of primary to secondary system leakage in SG 1B. In August 1998, after a series of rapid increases in the leakage, the licensee shut down the unit to repair the SG. The primary cause of the leakage was found to be tube R25C51, which had two large freespan ODSCC (outside diameter stress corrosion cracking) axial indications above the top of a tubesheet sleeve. The licensee documented this shutdown, and subsequent repair activities in LER No. 98-002-00, which is discussed in Section M8.2, below. Shortly after returning the unit to service, and for the duration of the operating cycle, SG 1B again experienced a small primary-to-secondary leak. Visual examination during the subsequent outage showed this leak to be in tube R43C32, and ET examination determined it to be from an axial ODSCC crack immediately above the first hot-leg tube support plate.

The inspectors reviewed the ET data for tubes R25C51 and R43C32; this review included retrieving the Spring 1997 data and comparing that data with the results of the latest examinations. The inspectors agreed with the licensee's determination that the 1997 ET bobbin-signals, for the free-span area above the sleeve of tube R25C51 (the cause of the August tube leak outage) should have been called non-quantifiable indications (NQIs) and scheduled for plus-point ET examination at that time. The signals in that area were noisy, but there were distinct defect signals that should have been called. The inspectors also agreed that the 1997 ET bobbin-signals for tube R43C32 were unusual signals that only showed on one ET channel (i.e., could not be confirmed by other ET frequency channels). The evaluation guidelines in place in 1997 did not require an NQI call for an unconfirmed indication. The inspectors agreed that the problems associated with the leaking SG tubes were the result of isolated human error in the case of tube R25C51, and a weakness in the eddy current evaluation procedure in the case of tube R43C32. The weakness has been corrected by procedure revision.

During the review of ET inspection results, the inspectors noted some ET data with relatively high voltage signals indicating larger potential defects. The inspectors then compared these data with data taken in the Spring of 1997 to determine if there had been additional problems overlooked during the previous inspection. The inspectors found no other examples of overlooked indications. A concern was raised by the inspectors about apparent high growth rates of axial ODSCC indications. The inspectors discussed these concerns about high indication growth rates, and specifically the two tubes mentioned below, with members of the Steam Generator Section of the Materials and Chemical Engineering Branch of Nuclear Reactor Regulation.

Two examples of extreme high indication growth rate were identified in tubes R10C2 and R20C42 in SG 1C. Tube R10C2 contained a 13.78 volt ET bobbin signal just above the 1H support plate. The signal was confirmed, by plus-point examination, to be an axial ODSCC indication. This is the same vertical location as the axial ODSCC indication in tube R43C32, which was leaking at the start of this outage. In the case of tube R10C2, the Spring 1997 ET data did not show any recordable indications above the 1H support plate. Tube R20C42 contained a 10.15 volt ET bobbin signal in the center of the 2H support plate that was confirmed, by plus-point examination, to be an axial ODSCC indication. The 1997 ET bobbin data for R20C42 did not show any recordable indications in the area, other than that of the support plate.

At the start of the refueling outage inspections, the licensee pulled the damaged section of tube R25C51 for further evaluation. Tube R43C32 could not be pulled because of its location near the edge of the tube bundle. An additional tube, R6C10 from SG 1C, was pulled for laboratory examination due to a number of free-span indications between the hot leg tube sheet and the 2H support plate. The purpose of this tube pull was to aid in the determination of the threshold size of detectable axial ODSCC indications, as well as to confirm the size of the detected ones. This data will be added to existing tube pull data to support growth rate calculations to determine the permissible safe operating cycle until the next SG inspection. The high growth rate concern will be discussed further between the licensee and NRC.

The inspectors also observed portions of ultrasonic (UT) examinations that were being conducted to confirm in-situ pressure test locations. These UT exams were also being used to further examine areas of tubing which showed high-voltage permeability changes which could mask ET indications.

c. Conclusions

The licensee's steam generator inspections this outage were conducted in a conservative manner. Weaknesses in the area of previous data evaluation were identified by review of data for leaking tubes and were corrected and emphasized during site-specific training for eddy current analysts.

M1.3 Unit 1 Baffle Former Bolt (BFB) Replacement

The inspectors reviewed the process, interviewed personnel, and observed various portions of the BFB replacement. The inspectors concluded that the licensee had conservatively and comprehensively planned the activity. Personnel involved were knowledgeable of the process, system, and requirements associated with the activity. The inspectors noted that the licensee was effectively capturing and using "lessons learned" during the evolution. The inspectors concluded that the BFB replacement activity was well planned and executed.

M2 Maintenance and Material Condition of Facilities and Equipment**M2.1 Unit 2A Containment Spray System Leak (62707)**

The 2A containment spray pump suction line drain valve developed a seat leak of about 2.8 gallons per hour (gph). This leakage was greater than the UFSAR recommended limits of 1.0 gph and the licensee initiated actions to repair the valve. The repair was scheduled for November 10, however, poor planning by maintenance personnel missed an in plant installation condition that prevented the work. The work order was canceled, but Operations was not notified to remove the repair work activity from the schedule. Subsequently, the system was tagged out rendering it incapable of performing its safety function in preparation for the scheduled repair. The leak was subsequently stopped by adding a pipe cap to the piping.

The licensee initiated an OR to address these issues. The inspectors reviewed the OR, discussed the issue with maintenance and operations management, and reviewed the valve work. The inspectors found that the root cause and corrective actions were addressed appropriately. However, the inspectors identified this to be an unnecessary safety equipment outage due to poor planning and communications.

M8 Miscellaneous Maintenance Issues**M8.1 (Closed) IFI 50-348, 364/98-03-01: Inadequate Thread Engagement (92902)**

The inspectors reviewed the results of the licensee's walkdowns and evaluations. No deficiencies were identified that adversely affected component operability. The licensee adequately assessed the as-found conditions and implemented corrective maintenance.

Licensee personnel performed additional walkdowns of the Emergency Diesel Generators (EDGs) in June 1998. Several minor thread engagement deficiencies were identified on the EDG heat exchangers. These heat exchangers were worked by maintenance staff during 1997 and early 1998. Also, in November 1998, while observing surveillance testing, the inspectors identified that a temporary flange installed by Operations personnel had three of four studs with inadequate thread engagement. The individual was not aware of thread engagement requirements.

The inspectors reviewed the root cause analysis and determined that it focused on contract maintenance personnel. The root cause team determined that the licensee maintenance personnel was following the requirements for thread engagement based on interviewing two maintenance persons. The corrective actions for ensuring contract maintenance staff complied with plant requirements appeared to be adequate. The inspectors concluded that the licensee's root cause analysis focused too narrowly on contractor maintenance personnel. Subsequently, the licensee issued a Training Advisory Notice reminding all Maintenance and Operations personnel of the thread engagement requirements.

M8.2 (Closed) LER No. 98-002-00, "Steam Generator Tube Leakage, Investigation, Repair and Evaluation"

The inspectors reviewed the corrective actions discussed in the LER and discussed the results of the root cause investigation with the licensee and contractors. The inspectors reviewed the historical eddy current data for the Unit 1, steam generator B, tube No. R25C51, described in the LER. The inspectors agreed with the licensee's assessment that those freespan indications, above the top of the tube sleeve should have been called non-quantifiable indications (NQIs) during the 1997 review of the bobbin data. This would have required that the area be inspected with a plus-point probe. Confirmation of the indications by plus-point probe at that time, would have required that the tube be plugged. The inspectors agreed with the licensee's conclusions that the missing of the indications in the tube by both primary and secondary analysts appeared to be an isolated example of human error. This LER is closed.

III. Engineering

E2 Engineering Support of Facilities and Equipment

E2.1 Capability to Detect and Isolate Emergency Core Cooling System (ECCS) Pump Seal Failures (37551)

On August 19, during inspection of licensee actions associated with a 1A Residual Heat Removal (RHR) pump seal leak, the inspectors identified that Unit 1 design was not consistent with UFSAR Section 6.3.2.11 and the licensee's Licensing Amendment Request for Power Uprate, Section 2.16.7.3.4. UFSAR Section 6.3.2.11 stated "the design of the auxiliary building and related equipment is based upon handling of leaks up to a maximum of 50 gal/min. Means are also provided to detect and isolate such leaks in the emergency core cooling flow path within 30 minutes." Licensing Amendment Request for Power Uprate, Section 2.16.7.3.4, Evaluation of the Radiological Consequences of a Loss of Coolant Accident, stated "The results shown in Tables 2.16-4 and 2.16-5 include the contribution from ECCS recirculation loop leakage outside containment as described in FSAR Section 6.3."

The inspectors found that Unit 1 did not have an annunciator that activated when an ECCS pump room sump pump started. The sump pump controls and indications were on a back panel in the Control Room and were not routinely observed. Therefore, the sump pumps would run as needed until a generic annunciator for the liquid radiological waste panel would alarm and prompt the operators to look for any running sump pumps. The inspectors reviewed the licensee's Emergency Operating Procedures and found that the lack of an annunciator could delay identification of an ECCS pump seal failure by several hours. The inspectors discussed this UFSAR deficiency with licensee staff who promptly initiated a procedure change to FNP-1-EEP-1.0.

The inspectors reviewed offsite dose calculations and found that both the licensee's and the NRC's calculations demonstrated that the resultant dose would be less than 10 CFR 100 limits. While there were no safety consequences, this was determined to be a de-facto design change and is another example of EEI 50-348,364/98-05-02.

E8 Miscellaneous Engineering Issues**E8.1** (Closed) IFI 50-348, 364/98-01-03: Review of Approved Containment Ventilation System (CVS) Functional System Description (FSD) (92903)

The inspectors compared the approved CVS FSD to the current UFSAR and determined the documents were consistent.

E8.2 (Closed) Violation (VIO) 50-348, 364/98-03-06: Failure to Track and Control Conditions Adverse to Quality (92903)

The inspectors reviewed the completed corrective actions and concluded they were adequately detailed and appropriate.

E8.3 (Open) Escalated Enforcement Item (EEI) 50-348, 364/98-05-02: Failure to Identify Defacto 50.59 and Unreviewed Safety Question (USQ) (92903)

The inspectors performed additional reviews of the licensee's documentation used to determine the Reactor Vessel Support (RVS) concrete temperatures. The inspectors identified the following discrepancies associated with the 1972 FNP specific analysis which affects the licensee's current evaluation.

- 1) The 1972 FNP specific analysis used an Reactor Coolant System (RCS) temperature of 547°F. Actual RCS temperature for the hot legs at 100% power would be approximately 613°F.
- 2) The 1973 Westinghouse generic analysis was for a RVS assembly which had four support fins and six cooling fins per side. Farley's RVS assemblies do not have the six cooling fins.
- 3) The 1972 analysis did not specify the input values for an air temperature or flow rate. The licensee assumed it was 120° F and 3000 cfm.
- 4) The 1972 and 1973 analysis did not account for radiation heating of the concrete or steel.

These discrepancies were provided to the licensee as they were identified. This item will remain open pending further NRC review.

The inspectors also performed a visual inspection of the reactor sump area and determined that the UFSAR discrepancies identified in the last report did not invalidate the assumption that RVS inlet air temperature was less than 120°F.

IV. Plant Support**R1 Radiological Protection and Chemistry (RP&C) Controls****R1.1** Poor Contamination Posting Practices (71750)

On October 29, during a routine tour of the RCA, the inspectors noticed two examples of poor contamination posting practices. These items were brought to the attention of health physics management and were immediately corrected.

R1.2 Tour of Radiological Protected Areas

a. Inspection Scope (83750)

The inspectors reviewed implementation of selected elements of the licensee's radiation protection program. The review included observation of radiological protection activities including control of radioactive material, radiological surveys/postings, and radiation area/high radiation area controls.

b. Observations and Findings

During area tours, the inspectors observed that the licensee had effectively posted areas where radioactive material was stored and radioactive material observed was labeled as required. The inspectors also observed that Locked High Radiation Areas were locked and controlled. Radiological surveys reviewed were well documented and areas observed were posted consistent with the survey documentation. The licensee was maintaining contaminated square footage at approximately three percent of the total RCA excluding non-recoverable areas and contaminated areas in locked high radiation areas. The inspectors discussed and reviewed licensee improvements to worker contamination control work practices and observed good contamination control work practices. Calibrations of "in use" direct radiation and air sampler instrumentation were current for those instruments observed.

The inspectors reviewed selected Radiation Work Permits (RWPs) for adequacy of the radiation protection requirements based on work scope, location, and conditions. For the RWPs reviewed, the inspectors noted that appropriate protective clothing and dosimetry were required. The inspectors observed adherence to the RWP requirements during the performance of work including dosimetry required by the RWP. Based on records reviewed as of October 28, 1998, approximately 154 Personnel Contamination Events (PCEs) had occurred during 1998. This number of PCEs included 37 PCE's greater than 5000 dpm.

The inspectors reviewed and discussed survey results following an automatic start of the Penetration Room Filtration (PRF) System. The licensee concluded that airborne activity occurred as a result of Recycle Hold-up Tank water entering the transfer canal, striking the inside of the transfer canal walls and dislodging contamination from the walls. Licensee follow up actions and surveys showed no personnel in the area were contaminated, no unusual surface contamination or radiation levels were detected, and the Auxiliary Building ventilation system stack alarm was not activated. However, initial portable backup air samples performed in the SFP vicinity did indicate small amounts of gaseous and particulate radioactivity. Based on a review of post event surveys and discussions with licensee personnel, the inspectors determined that the licensee's follow up survey actions were appropriate.

c. Conclusions

The licensee was effectively maintaining controls for personnel monitoring, control of radioactive material, radiological postings, radiation area controls, and high radiation area controls.

R1.3 Occupational Radiation Exposure Control Program

a. Inspection Scope (83750)

The inspectors reviewed the licensee's implementation of procedures and engineering controls to achieve occupational doses and doses to members of the public that are As Low As Reasonably Achievable (ALARA).

b. Observations and Findings

The licensee had established a goal of less than 240 person-rem for the Unit 1 refueling outage 15 (1RF15). At the time of the inspection, the licensee was approximately on target with daily projections based on work scope accomplished.

The inspectors reviewed and discussed various ALARA initiatives and reviewed ALARA committee meeting minutes for meetings conducted during 1998. The inspectors also discussed with cognizant personnel, licensee initial ALARA preplanning for the two upcoming steam generator replacement outages. Based on these discussions and observations, the inspectors determined that the licensee was maintaining programs for controlling exposures ALARA and continued to be effective in controlling overall collective doses.

c. Conclusions

Based on records reviews, discussions with licensee personnel, and observations, the inspectors determined that the licensee was maintaining programs for controlling exposures ALARA and continued to be effective in controlling overall collective doses.

R2 Status of RP&C Facilities and Equipment

R2.1 Radiologically Controlled Area (RCA) and Containment Tours (71750)

Overall cleanliness of the RCA and containment remained good. Plant personnel observed working demonstrated appropriate knowledge and application of radiological control practices. Health Physics (HP) technicians generally provided positive control and support of work activities.

The inspectors reviewed radiation control procedure FNP-2-RCP-11, "Checklist For Unit 2 Containment Entries At-Power," Revision 6, attended the pre-entry briefing, and observed entry activities. The inspectors noted that the procedure did not address heat stress nor the of logging HP related equipment into and out of containment. These issues were discussed with the licensee.

R8 Miscellaneous RP&C Issues**R8.1** (Closed) VIO 50-348, 364/98-01-08: Failure to adequately implement contamination control practices during maintenance (92904)

The licensee responded to this violation by correspondence dated April 21, 1998. The inspectors reviewed and verified corrective actions for the violation. Based on completion of licensee actions, this item is closed.

P2 Status of EP Facilities, Equipment, and Resources**P2.1** Planned Emergency Operations Facility (EOF) Power Outage (71750)

The power supply for the EOF was secured for planned outage work. The licensee staff planned for the power outage and had established compensatory actions. The event was reported to the NRC as required by the Emergency Plan. The inspectors reviewed the work performed and the compensatory actions. The inspectors concluded that the licensee's actions well planned and compensation was adequate.

S1 Conduct of Security and Safeguards Activities**S1.1** Routine Observations of Plant Security Measures (71750)

The inspectors verified that portions of site security program plan were being properly implemented. Disabled vital area doors were properly manned and controlled. Security personnel activities observed during the inspection period were performed well. Site security systems were adequate to ensure physical protection of the plant.

F8 Miscellaneous Fire Protection Issues**F8.1** (Closed) IFI 50-348, 364/98-04-05: Pre-Action Sprinkler System Failures (92904)

The inspectors reviewed the evaluations of the licensee's root cause team and the associated actions to prevent recurrence. Additionally, the inspectors reviewed licensee responses to the Office of Nuclear Reactor Regulation (NRR) questions for a draft Information Notice. Based on the licensee's intended followup actions the inspectors concluded the issue was satisfactorily addressed.

V. Management Meetings**X1 Exit Meeting Summary**

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on December 11. The licensee acknowledged the findings present. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

Partial List of Persons ContactedLicensee

R. V. Badham, Safety Audit Engineering Review
C. L. Buck, Jr. Unit Superintendent
C. D. Collins, Operation Support Superintendent
R. M. Coleman, Maintenance Manager
G. P. Crone, Engineering Support Performance Supervisor
K. C. Dyar, Security Manager
T. H. Esteve, Planning and Control Superintendent
R. S. Fucich, Engineering Support Manager
S. Fulmer, Plant Training and Emergency Preparedness Manager
J. S. Gates, Administration Manager
D. E. Grissette, Assistant General Manager - Operations
J. G. Horn, Outage Planning Supervisor
J. R. Johnson, Operations Manager
D. H. Jones, SNC - Configuration Management Manager
R. A. Livingston, Chemistry Supervisor
R. C. Lulling, Planning Supervisor
R. R. Martin, Maintenance Team Leader
M. W. Mitchell, HP Superintendent
R. L. Monk, Engineering Support Supervisor
C. D. Nesbitt, Assistant General Manager - Plant Support
J. E. Odom, Unit Superintendent
W. D. Oldfield, Nuclear Operations Training Supervisor
L. M. Stinson, Plant General Manager - FNP
R. J. Vanderbye, Emergency Preparedness Coordinator
G. S. Waymire, Technical Manager
R. L. Winkler, Engineering Group Supervisor, Plant Modification and Maintenance Support
B. R. Yance, Plant Modification and Maintenance Support Manager

Other licensee employees contacted included construction craftsmen, engineers, technicians, operators, mechanics, and electricians.

List of Opened, Closed, and Discussed Items

<u>Type</u>	<u>Item Number</u>	<u>Description and Reference</u>
<u>Discussed</u>		
EEI	348, 364/ 98-05-02	Failure to Identify Defacto 50.59 and USQ (Section E8.3)
<u>Closed</u>		
IFI	348, 364/98-04-01	Multiple Tagorder Implementation Errors (Section O8.1)
LER	348/98-005-00	Auto Start of B Train of Penetration Room Filtration Due to Filling the Spent Fuel Transfer Canal (Section O8.2)
IFI	348, 364/ 98-03-01	Inadequate Thread Engagement (Section M8.1)
LER	348/98-002-00	Steam Generator Tube Leakage Investigation, Repair, and Evaluation (Section M1.2)
IFI	348, 364/ 98-01-03	Review of Approved Containment Ventilation System Functional System Description (Section E8.1)
VIO	348, 364/ 98-03-06	Failure to Track and Control Conditions Adverse to Quality (Section E8.2)
IFI	348, 364/ 98-04-05	Pre-Action Sprinkler System Failures (Section F8.1)
VIO	348, 364/ 98-01-08	Failure to Adequately Implement Contamination Control Practices During Maintenance. (Section R8.1)

List of Inspection Procedures (IP) Used

IP 37551: Onsite Engineering
 IP 40500: Effectiveness of Licensee Controls in Identifying, Resolving, and Prevent Problems
 IP 50002: Steam Generators
 IP 60710: Refueling Activities
 IP 61726: Surveillance Observations
 IP 62703: Maintenance Observations
 IP 71707: Plant Operation
 IP 71750: Plant Support Activities
 IP 83750: Occupational Exposure
 IP 90712: Inoffice Review of Written Reports
 IP 92700: Onsite Followup of Written Reports of Nonroutine Events at Power Reactor Facilities
 IP 92901: Followup - Operations
 IP 92902: Followup - Maintenance
 IP 92903: Followup - Engineering
 IP 92904: Followup - Plant Support