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Report Nos: 50-321/98-05, 50-366/98-05

Licensee: Southern Nuclear Operating Company, Inc. (SNC)

Facility: E. I. Hatch Plant, Units 1 & 2

Location: P. O. Box 2010
Baxley, Georgia 31515

Dates: August 2 - September 19, 1998

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EXECUTIVE SUMMARY

Hatch Nuclear Plant, Units 1 & 2
NRC Inspection Report 50-321/98-05, 50-366/98-05

This integrated inspection included aspects of licensee operations, engineering, maintenance, and plant support. The report covered a 7-week period of resident inspection; in addition, it included the results of announced inspections by regional maintenance, emergency preparedness, and radiation protection inspectors.

Operations

- Operations management took immediate and appropriate corrective actions to calibrate an erroneous Emergency Diesel Generator fuel oil tank level indication. All Technical Specification acceptance criteria was met. Operations management displayed conservative and cautious approaches for verifying the required level in the fuel oil day tanks via recent Operating Orders (Section O2.1).
- The outage safety assessment procedure was a useful tool to reduce risk. The corporate safety assessment was beneficial in highlighting times of increased vulnerability. The procedure and assessment required a review of plant status, available systems, and ongoing work activities to determine increased risk conditions. Operator inattention to detail in the use of the procedure resulted in a failure to promptly identify a condition of increased risk (Section O3.1).
- The Unit 2 shutdown for the scheduled refueling outage was well coordinated. Operators exercised caution when performing steps throughout the shutdown. Communication, correct procedure usage, and interaction of operators in the control room contributed to safe operation during the evolution (Section O4.1).
- The licensee's actions with respect to a Notice Of Unusual Event were timely and correct. The appropriate procedures were correctly implemented (Section O8.3).

Maintenance

- The Inservice Inspection activities observed/reviewed were conducted in accordance with procedures, licensee commitments and regulatory requirements (Section M1.2).
- Underwater welding of the Emergency Core Cooling Systems suction strainers was accomplished by qualified and properly certified welders using certified welding filler materials. Unnoticed by the originator and two reviewers, the essential variable, welding depth, was not indicated on the Welder Performance Qualification record for three of five welders (Section M1.3).
- The engineering evaluation for performing a freeze seal on the discharge piping of the 2A Control Rod Drive pump lacked details, particularly for use and application of a possible second seal referenced in the evaluation. The evaluation proposed the use of a freeze seal that did not meet the distance criteria of industry guidelines (Section M2.2).

- The licensee's Periodic Assessment of the Maintenance Rule program met the requirements of the Maintenance Rule. The inspectors found the assessment to be comprehensive (Section M8.1).

Engineering

- Personnel inspecting new fuel on Unit 2 were conscientious and meticulously verified that measured dimensions were within the tolerances of inspection gages. Inspection personnel met the training requirements and were certified in accordance with plant procedures (Section E1.1).
- The observed installation of fire barrier material was in accordance with vendor instructions. Exceptions to the instructions were documented in minor deviation reports for further evaluation. Craft personnel were trained and qualified in accordance with vendor requirements (Section E2.1).

Plant Support

- The licensee effectively maintained controls for personnel monitoring, control of radioactive material, radiological postings, radiation area controls, and high radiation area controls as required by 10 CFR Part 20. Overall efforts to reduce personnel contaminations during 1998 to date were positive. Improvements were noted in general facility radiological housekeeping and cleanliness (Section R1.1).
- The licensee controls for minimizing internal exposure were effective with potential intakes of radionuclides evaluated appropriately (Section R1.2)
- The As Low As Reasonably Achievable (ALARA) planning was limited in some aspects as evidenced by minimal participation by upper management in scheduled plant ALARA committee meetings and by inspector observation of a pre-job briefing that contained inconclusive details for a high dose-expenditure task (Section R1.3).
- Emergency facilities and equipment were maintained in an operational status. The licensee maintained on-shift dose assessment capabilities that was a user friendly program that required minimal training (Sections P2.1 and P2.2).
- Both of the licensee's Notice of Unusual Events since August 1996 were properly classified and the notifications were made in a timely manner (Section P3.2).
- The licensee maintained a satisfactory Emergency Preparedness training program. Drill commitments were performed during exercises (Section P5.1).
- The Emergency Preparedness Program audits were satisfactory and satisfied the requirements of 10 CFR 50.54(t) (Section P7.1).

Report Details

Summary of Plant Status

Unit 1 operated during the report period at essentially 100% rated thermal power (RTP).

Unit 2 began the report period at 100% RTP. On August 7, power was reduced to approximately 80% for scram time testing of control rod 22-15 following replacement of a scram pilot solenoid valve associated with this control rod. The unit began the end of fuel cycle coastdown on August 20 and shut down for a scheduled refueling outage on September 1.

I. Operations

O1 Conduct of Operations

O1.1 General Comments (71707)

Using Inspection Procedure 71707, the inspectors conducted reviews of ongoing plant operations. In general, the conduct of operations was professional and safety-conscious; specific events and noteworthy observations are detailed in the sections below.

O1.2 Equipment Clearance Review (71707)

The inspectors performed a review of selected clearances to verify they were adequate for their intended purpose. Procedures, plant drawings, and work orders were reviewed to perform this verification. Temporary Releases of clearance components were verified for appropriate authorization. Several clearances were walked down in the plant to verify they had been properly implemented.

No deficiencies were identified.

O2 Operational Status of Facilities and Equipment

O2.1 2A Emergency Diesel Generator (EDG) Fuel Oil Day Tank Level Issue

a. inspection Scope (71707) (37551) (40500)

The inspectors followed up on an issue related to the fuel oil day tank level indications for the EDGs.

b. Observations and Findings

On September 1, control room operators discovered that the 2A EDG day tank level indicated 894 gallons, which was below the Technical Specification (TS) required level of 900 gallons.

The inspectors observed that the licensee took immediate corrective action to troubleshoot and recalibrate the control room indicator. The inspectors reviewed setpoint diagrams and tank curve documentation for the day tanks and discovered that

the indicated volume in the tank varied depending on instrument calibration, accuracy, and the fuel oil specific gravity. These inaccuracies were conservative, i.e. the actual volume in the tank was as much as 20-60 gallons more than the indicated volume. Following recalibration the level indicator provided a more accurate indication of actual day tank level. The inspectors reviewed applicable completed TS surveillances and did not find evidence that the actual tank level in the 2A EDG day tank had been less than the TS required 900 gallons.

The inspectors observed that operations management promulgated an Operations Order to have control room operators verify day tank level for all five EDGs on a daily basis.

c. Conclusions

Operations management took immediate and appropriate corrective actions to calibrate an erroneous Emergency Diesel Generator fuel oil tank level indication. All Technical Specification acceptance criteria was met. Operations management displayed conservative and cautious approaches for verifying the required level in the fuel oil day tanks via recent Operating Orders.

O3 Operations Procedures and Documentation

O3.1 Refueling Outage Shutdown Risk Assessment

a. Inspection Scope (60710)

The inspectors reviewed the licensee's process for ensuring the likelihood and consequences of adverse events were reduced to a minimum during the Unit 2 refueling outage. The inspectors reviewed procedure, DI-OPS-57-0393N, "Outage Safety Assessment," Revision (Rev.) 7, as well as the results of a corporate assessment of shutdown risk performed for the refueling outage.

b. Observations and Findings

Procedure DI-OPS-57-0393N identified six separate areas which were assessed on a daily basis. Those areas were; decay heat removal, reactivity control, coolant inventory control, secondary containment, power availability and critical equipment. Within each area, criteria based on equipment availability were delineated which served to define the risk of operating with various plant conditions. The risk associated with each area was represented by a color of green, yellow, or red, with green being the least risk significant and red being the most risk significant.

The assessment was performed each shift and was reviewed and discussed with various operations and outage personnel. In addition, an assessment was conducted if plant conditions changed which affected the assessed areas. If an assessed area was something other than green, Outage Management was contacted to expedite corrective actions necessary to exit that condition. The inspectors reviewed the Safety Assessment Checklist and found it to be a simple yet effective means for measuring the

different assessed areas.

The inspectors also reviewed a shutdown risk assessment performed by the licensee specifically for the Unit 2 refueling outage. The assessment was divided into the various plant conditions which would exist throughout the outage. Each day of the outage was included in the assessment. The assessment concluded that there were four periods during the outage which would result in a yellow condition existing and no periods in which a red condition would exist. Throughout the assessment, recommendations were suggested to limit the risk associated with certain plant conditions. As an example, it was suggested that during periods when shutdown cooling was in service, work in control room panels should be restricted to prevent accidental closure of the shutdown cooling valves.

On September 9, the licensee performed the routine once per shift safety assessment and concluded that all areas were green. However, the Core Spray system was not available for alternate decay heat removal because the Safety Relief valves had been removed from service. The procedure required that a yellow condition exist anytime there were no Core Spray pumps available while the reactor head was installed with fuel in the reactor. This yellow condition was not identified by the licensee until the following shift. In addition, the safety assessment performed by the corporate office did not recognize that a yellow condition would exist when the plant was in that configuration. The yellow condition existed until the reactor head was detensioned and the Core Spray pumps were not relied upon for decay heat removal.

c. Conclusions

The outage safety assessment procedure was a useful tool to reduce risk. The corporate safety assessment was beneficial in highlighting times of increased vulnerability. The procedure and assessment required a review of plant status, available systems, and ongoing work activities to determine increased risk conditions. Operator inattention to detail in the use of the procedure resulted in a failure to promptly identify a condition of increased risk.

O4 Operator Knowledge and Performance

O4.1 Operator Performance During Unit 2 Shutdown (71707)

The inspectors reviewed procedures and observed operator performance during portions of the Unit 2 scheduled reactor shutdown for refueling on September 7. The inspectors observed that operators were attentive to annunciators, used peer reviews and consistently displayed three-part communications throughout the shutdown. The inspectors attended a special pre-evolution briefing conducted prior to performing the Unit 2 reactor scram. The briefing was thorough, and supervisors conveyed the appropriate emphasis on safe, conservative decision making, and special precautions for controlling reactor water level immediately after the scram.

The inspectors concluded that the Unit 2 shutdown was well coordinated. Operators exercised caution when performing steps throughout the shutdown. Communication, correct procedure usage, and interaction of operators in the control room contributed to safe operation during the evolution.

O4.2 Control Rod Blade Unlatching (71707)

The inspectors observed operators unlatching control rod blades in accordance with procedure 42FH-ERP-001-0S, "Control Rod Blade Unlatching, Installation, Removal, And Installation," Rev. 5. The inspectors observed operations from both the control room and the refuel floor. The operators performing the task were knowledgeable about the activity and were methodical in their performance of the activities required by the evolution. Communications between the control room, refuel floor, and operators in the reactor building were satisfactory. The inspectors noted good use of three-part communication and peer checks. No deficiencies were identified.

O8 Miscellaneous Operations Issues (92901)

O8.1 (Closed) Violation (VIO) 50-366/97-12-02: Failure to Implement Changes to Vendor Manual

The licensee responded to this violation in correspondence dated April 7, 1998. The inspectors reviewed the licensee's corrective actions, which included revision to the vendor manual and procedures, and concluded that they were satisfactory.

O8.2 Review of Overtime (OT) Use (71707)

The inspectors reviewed Unit 1 and 2 Technical Specification sections 5.0, Administrative Controls, which establishes the requirements for OT use; procedure 10AC-MGR-020-0S, "Overtime," Rev. 0; and the licensee's use of overtime among plant operators during recent non-outage periods. No deficiencies were identified. Overtime use was controlled per procedure, and deviations were authorized at the appropriate management level.

O8.3 Declaration of a Notice of Unusual Event Due To Transporting Potentially Contaminated Individuals Offsite (93702)

On September 17, the licensee declared a Notice of Unusual Event (NOUE) when two injured and potentially contaminated individuals were transported to a local hospital. The two individuals were removing a tube bundle from a main steam moisture separator reheater when a chain hoist slipped off the hook from which it was attached and recoiled backward. In doing so, the chain hoist handle struck one operator in the abdomen. A sudden jolt occurred when the chain hoist fell and caused another chain hoist being used to strike a second individual.

The inspectors conducted a walkdown of the work location to assess other potential personnel safety issues hazards. No significant issues were identified. The inspectors observed that Health Physics (HP) personnel established and monitored the location

where the injured personnel were placed in the ambulance. The area was properly roped-off and identified as a potentially contaminated area. A HP technician accompanied the injured individuals in the ambulance to the hospital.

The inspectors were informed that licensee HP technicians surveyed the treatment area in the hospital, the equipment used to treat the two individuals, the ambulance, and the individuals protective clothing they were wearing at the time they were transported. With the exception of traces of fixed contamination on one of the individuals protective clothing, other items were found to be radiologically clean.

The inspectors concluded that the licensee's actions with respect to the NOUE were timely and correct. The appropriate procedures were correctly implemented.

II. Maintenance

M1 Conduct of Maintenance

M1.1 General Comments (62707)

The inspectors observed all or portions of selected maintenance activities. The inspectors found that work performed under these activities was conducted in a professional and thorough manner and in accordance with instructions, procedures, and work packages. Work packages were present at the work location and documentation was complete. Workers were knowledgeable of the work scope and precautions to be used in performing tasks. Radiation protection and safety measures were exercised where appropriate.

M1.2 Inservice Inspection (73753)

To evaluate the licensee's Inservice Inspection (ISI) program and the program's implementation, the inspectors reviewed procedures, observed work in progress and reviewed selected records. Observations were compared with applicable procedures, the Updated Final Safety Analysis Report (UFSAR) and American Society of Mechanical Engineers (ASME) B&PV Code Sections V and XI, 1989 Edition, No Addenda (89NA).

The inspectors determined that the procedures reviewed were concise and well written. Inservice examinations observed/reviewed were conducted in accordance with properly approved procedures, by qualified and certified examiners using certified/calibrated equipment and materials.

The inspectors concluded that the Inservice Inspection activities observed/reviewed were conducted in accordance with procedures, licensee commitments and regulatory requirements.

M1.3 Underwater Welding Associated With The Replacement of Emergency Core Cooling System (ECCS) Suction Strainers on Unit 2

a. Inspection Scope (55050)

To evaluate the licensee's actions related to underwater welding associated with the ECCS strainer replacement, the inspectors observed mockup training, reviewed procedures, observed welding activities at the surface, and examined selected records. Observations were compared with: ASME B&PV Code Section IX 1995 Edition, 1997 Addenda (95A97); ASME Code Case Code Case N-515-1 "Underwater Welding," dated December 31, 1996; licensee procedures; and the UFSAR.

b. Observations and Findings

ASME B&PV Code Section IX, paragraph QW-301.4 Record of Tests, requires that the Welder Performance Qualification (WPQ) records include all essential welding variables. The essential variable, welding depth, for underwater welding, as promulgated in Code Case N-515-1 was not indicated on the WPQs for three of the five underwater welders. This missing essential variable went unnoticed by the originator of the WPQs and two reviewers. The licensee, by review of ancillary records and interview with the performance test administrator for the three welders in question, identified the depth at which the test was administered. This depth was appropriate for the underwater welding being performed. The licensee corrected the WPQs and initiated a Deficiency Card to address corrective actions for this issue.

c. Conclusion

Underwater welding of the ECCS suction strainers was accomplished by qualified and properly certified welders using certified welding filler materials. Unnoticed by the originator and two reviewers, the essential variable, welding depth, was not indicated on the Welder Performance Qualification record for three of five welders. This constitutes a violation of minor significance and was not subject to formal enforcement action. The inspectors concluded that the licensee's corrective actions were appropriate.

M2 **Maintenance and Material Condition of Facilities and Equipment**

M2.2 Repair of Control Rod Drive (CRD) Pump Discharge Valve

a. Inspection Scope (62707) (37551)

The inspectors reviewed procedures and documents related to repairs performed on the 2A CRD pump discharge isolation valve, 2C11-F014A.

b. Observations and Findings

On July 31, the inspectors reviewed an engineering evaluation for performing a freeze seal associated with planned corrective maintenance on 2A CRD pump discharge isolation valve, 2C11-F014A. The engineering evaluation addressed the probability of

needing a second freeze seal on the line to provide cooling for the primary freeze seal. However, details for the placement of this second freeze seal were not provided.

The inspectors brought the lack of details for the second seal to the attention of maintenance management. The inspectors were informed by maintenance management, that, after a review of the evaluation, a freeze seal would not be used. This decision was based upon industry guidance that two freeze seals in the same line should be separated by a distance equal to at least 30 nominal pipe diameters. The guidance also recommended that a freeze seal should be installed at least 20 nominal pipe diameters from a component or obstruction that completely blocks the flow of expanding water. These industry guidelines could not be met for the planned freeze seal.

The inspectors observed portions of the repair that was successfully made on the discharge isolation valve on August 5, using check valve 2C11-F241A as the isolation boundary. The inspectors verified that the equipment clearance for the work activity was correct. The inspectors observed that MWO 2-98-1675 sufficiently addressed the contingencies to take if the check valve leaked during the repair activity.

c. Conclusion

An engineering evaluation for corrective maintenance proposed the use of a freeze seal that did not meet current industry guidelines. Maintenance personnel successfully completed the corrective maintenance for the 2A CRD pump discharge isolation valve using the pump discharge check valve as the isolation boundary. The contingencies to take if the check valve leaked during the repair activity were sufficiently addressed.

M3 Maintenance Procedures and Documentation

M3.1 Surveillance Observations (61726)

The inspectors observed all or portions of selected surveillance activities and concluded that personnel performance during surveillance activities was professional and competent. Good use of peer checks and three-part communication were observed. This was evidenced by correct procedure usage and adherence. Supervisory oversight was also evident. Test results reviewed by the inspectors met the procedure and TS acceptance criteria.

M3.2 Seismic Monitor Calibration (61726)

On September 15, the inspectors observed portions of the performance of surveillance procedures 57SV-CAL-011-1S, "Peak Shock Recorder Calibration," Rev. 1, Ed 1 and 57SV-L51-005-2S, "Calibration of Engdahl Par 400 Peak Acceleration Recorder," Rev. 0, Ed 1. The calibration was performed by a vendor representative with the assistance of licensee instrumentation and control (I&C) technicians. The inspectors observed the calibration process by the vendor representative and verified that the calibration date on the instruments was current.

The inspectors and licensee personnel identified that some references contained within both procedures were not accurate for the current TS. The I&C supervisor made the proper editorial changes to update the references. The inspectors observed that the surveillances were performed on an 18 month frequency and these deficiencies had not been corrected. The inspectors concluded that outdated references in the surveillance procedures were minor and administrative in nature and did not alter the validity or performance of the surveillances.

M8 Miscellaneous Maintenance Issues (92902)

- M8.1 (Closed) IFI 50-321, 366/98-01-01: Maintenance Rule Periodic Assessment
Paragraph (a)(3) of the Maintenance Rule required that performance and condition monitoring activities and associated goals and preventive maintenance activities be evaluated taking into account, where practical, industry-wide operating experience. This evaluation was required to be performed at least one time during each refueling cycle, not to exceed 24 months between evaluations. The inspectors reviewed the licensee's Maintenance Rule Periodic Assessment (MRPA) report.

The MRPA was conducted by a team of thirteen, including a Probability Risk Assessment (PRA) consultant and representatives from the Farley, Vogtle and Brunswick nuclear power plants. The MRPA addressed all the topics of NUMARC 93-01, "NUCLEAR ENERGY INSTITUTE INDUSTRY GUIDELINES FOR MONITORING THE EFFECTIVENESS OF MAINTENANCE AT NUCLEAR POWER PLANTS", Rev. 2, and 12.0, PERIODIC MAINTENANCE EFFECTIVENESS ASSESSMENTS, except for the evaluation of "each goal for its continued applicability." The inspectors discussed this with the licensee, who indicated that each goal that was in place at the time of the assessment were evaluated and were found to be applicable. The licensee further indicated that, although they performed the evaluation, they did not document that evaluation in the MRPA.

The licensee conducted its MRPA May 11-15, 1998. This assessment covered Unit 1 Operating Cycle 16 (April 1996 to October 1997) and Unit 2 Operating Cycle 12 (November 1995 to March 1997). A copy of Plant Hatch MRPA was presented to and approved by the expert panel July 9, 1998. The final report was issued July 31, 1998.

The assessment was comprehensive, and identified approximately 91 observations, 26 strengths, 32 weaknesses, 14 items for management considerations and 5 recommendations. As of July 31, 1998, the licensee had completed corrective actions for 18 observations, and 5 weaknesses, and has corrective actions in progress for 12 observations, 16 weaknesses, 6 items for management considerations and 2 recommendations. The licensee was in the process of developing an action plan to address the remaining observations, weaknesses, items for management considerations and recommendations.

The inspectors concluded that the licensee's Periodic Assessment met the requirements of the Maintenance Rule. The inspectors found the assessment to be comprehensive. This issue is considered closed.

M8.2 (Closed) VIO 50-366/98-01-02: Failure to Follow Maintenance Procedures

The licensee responded to this violation in correspondence dated May 21, 1998. The inspectors reviewed the licensee's completed corrective actions and concluded that they were satisfactory.

III. Engineering

E1 Conduct of Engineering

E1.1 Receipt and Inspection of New Fuel on Unit 2

a. Inspection Scope (37551)(60705)(71750)

The inspectors observed the receipt and inspection of new fuel associated with preparation for the Fall 1998 Refueling Outage on Unit 2.

b. Observations and Findings

The inspectors observed various aspects of the receipt of new fuel including transport into the protected area, unpacking of the fuel from transport containers, and the inspection of the new fuel bundles. The inspectors observed that HP technicians were present and performed surveys and cordoned off the temporary storage area. The inspectors verified that the fuel was being handled in accordance with fuel handling procedure 42FH-ERP-012-0S, "New Fuel and New Channel Handling," Rev. 7.

On August 26, the inspectors observed the inspection of new fuel bundles. Additionally, the placement of fuel channels on the bundles and the transport of the inspected assemblies to the spent fuel pool was observed by the inspectors. The presence of nuclear engineering personnel providing guidance and oversight was observed. The inspectors observed that the inspection activity was accomplished in accordance with procedure 42FH-ERP-012-0S. The inspectors verified that the calibration stickers on the inspections tools were current.

The inspectors reviewed training records and verified the new fuel inspectors were certified in accordance with quality control (QC) procedure 45QC-PQL-001-OS, "Qualification and Certification of Inspection Personnel," Rev. 4, Ed 1.

c. Conclusion

Personnel inspecting the new fuel were conscientious and meticulously verified that measured dimensions were within the tolerances of inspection gages. Applicable procedures were used. Inspection personnel met the training requirements and were certified in accordance with plant procedures.

E2 Engineering Support of Facilities and Equipment

E2.1 Installation of Promatec Fire Barrier Material on Units 1 and Unit 2

a. Inspection Scope (37551) (71750)

The inspectors observed various stages of the installation of the Promatec fire barrier material. The installation of the block and solid wall configurations were observed. The inspectors also observed the installation of penetration seals around conduits and cable trays that penetrated the solid wall barrier material structures.

b. Observations and Findings

The inspectors observed various stages of the installation of Promatec fire barrier material on the 130 foot elevation of the control building and the east cable way of the turbine building. These installations were of the solid wall configuration. The inspectors also observed portions of the installation of a block wall upgrade on the masonry wall separating the Unit 2 main turbine lubrication oil conditioner room from station service switchgear rooms in the Unit 2 control building. This wall was upgraded from a one hour fire rating to a three hour fire rating.

The inspectors reviewed procedures and visually verified that the installation of fire barrier material was in accordance with vendor instructions. The inspector's questions pertaining to vendor procedures and processes were satisfactorily answered by the licensee's site and corporate engineers, QC personnel, and the vendor representatives.

The inspectors reviewed the four minor deviation reports (MDR) generated with respect to small areas that were inaccessible for the installation of fire barrier material. The inspectors were informed by QC personnel and the vendor representative that an engineering evaluation will be performed to determine whether these deviations will have an adverse impact upon the fire protection capability of the fire barriers involved. The MWOs for the work activities will remain open until the MDRs are resolved by an engineering evaluation or other corrective actions.

The inspectors also reviewed an MDR associated with a cable tray that partially penetrated the solid wall fire barrier structure in the east cable way of Unit 2. This deviation was corrected by covering that portion of the pull box within the structure with Promat fire barrier material. The inspectors observed part of the work activity associated with this corrective action and observed no deficiencies.

The inspectors reviewed training records and verified that the craft persons performing the installation were trained and qualified in accordance with vendor requirements.

c. Conclusion

The observed installation of fire barrier material was in accordance with vendor instructions. Exceptions to the installation instructions were documented as minor deviation reports for further evaluation. Craft personnel were trained and qualified in accordance with vendor requirements.

E8 Miscellaneous Engineering Issues (92903)

E8.1 (Closed) IFI 50-321, 366/97-03-05: Review of 4160 VAC Wiring Separation Deficiencies

On April 16, 1997, the licensee identified wiring inconsistencies in safety-related switchgears on both units. Some low voltage wiring circuits did not meet the minimum six inch separation criteria for divisional separation. The licensee determined that the deficiencies occurred during the construction phase of the plant.

This issue is discussed in Section E1.2 of Inspection Report 50-321, 366/97-03, and Section E1.1 of Inspection Reports 50-321, 366/97-07 and 50-321, 366/97-09. The inspectors concluded that licensee corrective actions were satisfactory.

E8.2 (Closed) VIO 50-366/98-01-03: Failure to Follow Engineering Test Procedures

The licensee responded to this violation in correspondence dated May 21, 1998. The inspectors reviewed the licensee's completed corrective actions and concluded that they were satisfactory.

E8.3 (Closed) IFI 50-321, 366/97-12-05: Failure to Include Nitrogen Valves in a Test Program in Accordance With 10 CFR 50, Section XI of Appendix B, Test Control and VIO 321, 366/97-12-06: Insulation on Nitrogen Supply Piping Not Installed In Accordance With Drawings

The licensee responded to these violations in correspondence dated April 7, 1998. The inspectors reviewed the licensee's completed corrective actions and concluded that they were satisfactory.

IV. Plant Support

R1 Radiological Protection and Chemistry Controls (PP&C)

General Comments

On September 9, the inspectors verified that the licensee had the current Rev. of NRC Form 3, Notice to Employees, prominently posted in conspicuous locations, as required by 10 CFR 19.11. The inspectors observed that the forms were not defaced or altered. The inspectors also verified that the licensee's program for posting any notice of violation involving radiological working conditions was thorough and sufficiently detailed to ensure that 10 CFR requirements were met. The licensee routinely posted notice of

violations and provided sufficient information for workers to obtain more specific and detailed information regarding the posting. No deficiencies were identified.

R1.1 Tour of Radiological Protected Areas

a. Inspection Scope (83729)(83726)

The inspectors reviewed implementation of selected elements of the licensee's radiation protection program as required by 10 CFR Parts 20.1201, 1501, 1502, 1601, 1703, 1802, 1902, and 1904. 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 plant tours, the inspectors reviewed survey data and observed activities in progress. The licensee had effectively posted areas where radioactive material was stored and radioactive material observed was labeled as required. Locked High Radiation Areas were locked as required by procedures. Radiological surveys reviewed were well documented. Calibrations for "in use" direct radiation and air sampler instrumentation were current for those instruments observed. Improvements in general facility radiological housekeeping and cleanliness were noted.

As of September 18, approximately 70 Personnel Contamination Events, defined as contamination levels greater than 1000 disintegrations per minute, had occurred during 1998. The inspectors noted overall efforts during 1998 to reduce personnel contaminations had been positive based on the number of personnel contaminations in 1998 verses 1997.

Some poor contamination control work practices were observed. In addition, a specific concern regarding compliance with procedural and Radiation Work Permit (RWP) radiological controls was identified during observation of resin addition to the Unit 1 Cation Addition tank conducted September 16. The inspectors observed an operator breaching the tank with his hand and forearm to retrieve foreign materials which accidentally had fallen within the tank. The tank was clearly labeled "RWP required for Entry, Contaminated Material, Radioactive Material inside Tank." The operator wore a torn surgical glove and resin was observed on the skin of the individual's hands and forearms. The operator confirmed that a health physics representative was not contacted nor was a radiation survey conducted prior to him breaching the tank. Subsequent radiological surveys of the tank did not detect contamination.

The inspectors noted that contrary to TS 5.4.1, the operator failed to follow procedure 60AC-HPX-004-OS, "Radiation and Contamination Control," Rev. 16, and RWP No.098-004, Operations Inspection, Surveillance, Valve Line-ups, Rev. 0. The documents required in part, that, work entries into contaminated areas be made with full protective clothing or except as authorized by HP. Prior to the end of the onsite inspection the licensee initiated the following actions: a deficiency card was initiated, positive discipline program for the operator was taken, training was initiated for each shift crew, the issue was designated as a Significant Occurrence Report and Operations added this event to

the Human Performance Evaluation System (HPES) process with the root cause to be investigated and resolved. The failure to follow contamination control and RWP guidance for reaching into the cation addition tank was identified as a violation of TS 5.4.1. The inspectors concluded that management corrective actions were appropriate. This failure to comply with procedures was identified as a violation of minor safety significance and was not subject to formal enforcement action.

c. Conclusions

The licensee effectively maintained controls for personnel monitoring, control of radioactive material, radiological postings, radiation area controls, and high radiation area controls as required by 10 CFR Part 20. Overall efforts to reduce personnel contaminations during 1998 to date were positive. Improvements were noted in general facility radiological housekeeping and cleanliness.

A failure to comply with procedures for contamination controls was identified as a violation of minor safety significance and was not subject to formal enforcement action. The inspectors concluded management corrective actions were appropriate.

R1.2 Internal Exposure (83729)

The inspectors reviewed and discussed whole-body count (WBC) analyses and evaluations of potential radionuclide intakes and evaluations of potential radionuclide intakes and resultant internal exposure assessments associated with the ongoing Unit 2 refueling outage activities.

Evaluations reviewed were completed in accordance with approved procedures. Assumptions, time of initial intakes and internal exposure pathways used in licensee evaluations were determined to be appropriate. From review of five positive WBC analysis associated with the outage activities conducted as of September 14, one individual's investigative WBC analyses data resulted in an assigned committed effective dose equivalent (CEDE) of 20 millirem (MREM). This intake exceeded 0.2 percent of the annual limit of intake (ALI) and required the internal exposure to be added to an individual's official exposure records in accordance with approved licensee procedures.

The inspectors concluded that licensee controls for minimizing internal exposure were effective with potential intakes of radionuclides evaluated appropriately.

R1.3 Occupational Radiation Exposure Control Program (83729)

The inspectors reviewed the licensee's implementation of 10 CFR 20.1101(b) which requires that the licensee shall use, to the extent practicable, procedures and engineering controls based upon sound radiation protection principles to achieve occupational doses and doses to members of the public that are As Low As Reasonably Achievable (ALARA).

The inspectors review of the licensee's ALARA program determined the licensee had established a Unit 2 outage goal of less than 200 person-rem. At the time of the inspection on September 18, 1998, the licensee was tracking approximately 140 person-rem for 1998 which was on target with previous 1998 to date goals of 238 person-rem. The licensee had tracked and trended outage exposures for purposes of future outage preplanning and it was determined that exposures continue to trend downward based on ALARA initiatives.

Based on record reviews, discussions with licensee personnel, and observations, the inspectors determined the ALARA planning was limited in some aspects as evidenced by minimal participation by upper management in scheduled plant ALARA committee meetings and by inspector observation of a pre-job briefing that contained inconclusive details for a high dose-expenditure task involving the removal of several Control Rod Drives.

R4 Staff Knowledge and Performance in RP&C

R4.1 Reactor Coolant System Sample (71750)

On September 16, the inspector witnessed a Chemistry technician obtain a a TS required reactor coolant sample from both the Unit 1 and Unit 2 reactor coolant systems. The technician was very knowledgeable about the task of collecting and analyzing the sample. In addition, the inspector observed that good radiological control practices were exercised. Chemistry procedures were followed. No discrepancies were identified.

R5 Staff Training and Qualification in RP&C

R5.1 Review of Qualification and Training

a. Inspection Scope (83729)

The inspectors evaluated the qualifications of contractor radiation protection technicians to determine if all qualification requirements were in accordance with Technical Specification (T.S.) 5.3.1. Technical Specification 5.3.1 requires each member of the unit staff meet or exceed the minimum qualifications of American National Standards Institute (ANSI) N18.1-1971 for comparable positions, except for the Health Physics Superintendent, who shall meet or exceed the qualifications of Regulatory Guide 1.8, September 1975.

b. Observations and Findings

The inspectors observed through a review of qualification records that a recently appointed plant Health Physics Superintendent met the T.S. 5.3.1 requirements. However, the inspectors identified one example of a health physics contractor technician employed for the Unit 2 outage that did not meet the T.S. 5.3.1 requirements for having a minimum of two years of working experience in that specialty. Also, a follow-up investigation by the licensee determined one other contractor that had been employed to

perform health physics duties, did not meet the training qualifications. The licensee had been allowing up to a year of education to be substituted for a year of working experience in the health physics discipline. The ANSI 18.1. specifies a technician shall have a minimum of two years working experience and should have one year of related technical training. The licensee's corrective actions included: reviewing health physics contractor training records, disqualifying the individuals identified as not meeting the training requirements for working experience, and initiating procedural changes regarding contract HP technician requirements. The licensee entered this issue into the deficiency program. By the end of the inspection, the licensee had plans to re-familiarize personnel with contract specifications that addressed ANSI standards. The inspectors concluded that management corrective actions were appropriate. This failure to comply with procedures was identified as a violation of minor safety significance and was not subject to formal enforcement action.

c. Conclusions

The Inspectors concluded the Radiation Protection Superintendent met the requirements of technical specifications 5.3.1. Two contractor health physics technicians did not meet the qualification requirements of technical specification 5.3.1. which was identified as a minor violation.

R8 Miscellaneous Radiation Protection and Chemistry Issues (92904)(83729)

R8.1 (Closed) VIO 50-321, 366/96-15-05: Failure to follow procedures for radiation control activities

The licensee responded to this violation in correspondence dated March 5, 1997. The inspectors reviewed and verified corrective actions for the violation were satisfactorily completed.

R8.2 (Closed) VIO 50-321, 366/98-01-09: Failure to Follow Procedure for Analysis of a Grab Sample

The licensee responded to this violation in correspondence dated May 21, 1998. The inspectors reviewed the licensee's completed corrective actions and concluded that they were satisfactory.

P2 Status of EP Facilities, Equipment, and Resources

P2.1 Facility Inspection (82701)

The inspectors toured the Technical Support Center (TSC); Emergency Operations Facility (EOF), and Operational Support Center (OSC). Selected emergency response equipment was tested and found operational. No significant changes had been made to the facilities, although equipment enhancements were in process for the EOF and TSC.

Selected periodic surveillance documentation of emergency equipment to include the TSC Emergency Ventilation System, and the public notification capability provided by the Tone Alert Radios was reviewed with no identified discrepancies.

The inspectors concluded that the licensee maintained emergency facilities and equipment in an operational status.

P2.2 Emergency Response Dose Assessment Capabilities

a. Inspection Scope (82701)

Dose assessment capabilities were inspected to verify that the licensee maintained continuous dose assessment capabilities which used real time meteorological and radiological data. Also, the inspectors reviewed the Meteorological Information and Dose Assessment System (MIDAS) to evaluate the training required to operate the system.

b. Observations and Findings

The inspector verified that MIDAS was installed on computers in the TSC, EOF, and control room. Real time radiological and meteorological data was input to the computer; however, the program used default values for the source terms and did not have the capability of using actual isotopic analysis data from a Post Accident Sample System (PASS) sample.

As part of licensed operator training, Senior Reactor Operators (SROs) and Reactor Operators (ROs) were trained to do on-shift dose assessment using the "Prompt offsite dose assessment" version of MIDAS. The inspectors observed the licensee perform several dose assessment calculations and observed that the system was user friendly.

c. Conclusion

The inspectors concluded that MIDAS was user friendly and required minimal training to operate. The licensee maintained on-shift dose assessment capabilities.

P3 **EP Procedures and Documentation**

P3.1 Emergency Plan (82701)

The inspectors reviewed recent revisions to the Emergency Plan to determine whether changes were made in accordance with 10 CFR 50.54(q).

The current Emergency Plan (Revision 15, Change 1) was effective March 22, 1997. The minor changes to the plan that had been implemented with Change 1 were administrative in nature. A review of Revision 15 which was effective August 20, 1996, was made in accordance with the requirements. A report of each change was made to the NRC within 30 days.

The inspectors concluded that Emergency Plan changes were made in accordance with 10 CFR 50.54(q).

P3.2 Use Of The Emergency Implementing Procedures (82701)

The inspectors reviewed the licensee's two Notification of Unusual Event (NOUE) declarations since the last inspection conducted in August 1996, to verify the events were properly classified.

- October 28, 1996 - NOUE was declared due to toxic gas (Nitrogen) in an operating facility
- January 29, 1997 - NOUE was declared due to a reactor coolant leakage greater than technical specification limits

The inspectors concluded that both events were properly classified, applicable EIPs were implemented, and notifications to the NRC were made in a timely manner.

P5 Staff Training and Qualification in EP

P5.1 Training of Emergency Response Personnel

a. Inspection Scope (82701)

The inspectors reviewed the Emergency Response Training Program to verify emergency response personnel were initially trained and retrained annually to maintain their training current. Additionally, the role of drills and exercises supporting the training program was reviewed.

b. Observations and Findings

The inspector reviewed the System Master Plan for Emergency Preparedness Training. Based on this review, selected lesson plans and key individual training records were reviewed for conformance. No discrepancies were identified.

In the licensee's Emergency Plan, drills were defined as training scenarios and exercises as evaluated scenarios. The inspectors review noted that the licensee's drill commitments were performed during exercises and that the frequency of exercises had decreased from four (4) in 1996, to two (2) in 1997, to one (1) in 1998 (scheduled but not yet performed).

c. Conclusion

The inspectors concluded that the licensee maintained a satisfactory Emergency Preparedness training program. Drill commitments were performed during exercises.

P6 EP Organization and Administrationa. Inspection Scope (82701)

The inspectors reviewed this area to determine if changes in personnel had occurred which could affect the management and implementation of the Emergency Preparedness program.

b. Observations and Findings

No changes had occurred in the licensee's emergency management control system. The EP program continued to be implemented to meet regulatory requirements by a seasoned knowledgeable staff.

A new Director of the Tattnall County Department of Emergency Management was recently appointed. Discussions with licensee personnel indicated a supportive working relationship with the new Director. The inspectors were informed that no other significant changes in management personnel for offsite interface/support agencies had occurred since the last EP inspection.

c. Conclusions

The EP program was being implemented by a knowledgeable staff.

P7 Quality Assurance in EP ActivitiesP7.1 Required 10 CFR 50.54(t) Audit Of Emergency Preparedness Program (82701)

The inspectors conducted the reviews and assess the quality of the required audit, and to verify the audit met the requirements of 10 CFR 50.54(t).

The inspector reviewed Audit of the Emergency Preparedness Program, reports 96-EP-1, 97-EP-1, 97-EP-2, and 98-EP-1. The inspectors review concluded that the audit scope and detail satisfied the requirements in 10 CFR 50.54(t).

P7.2 Licensee's Corrective Action Program For Drill Comments and Issues (82701)

The area was inspected to evaluate the licensee's corrective action to comments and issues identified in their drills.

The inspectors reviewed the licensee's drill documentation and verified that significant critique comments were being tracked and resolved. Emergency Preparedness issues were tracked on the licensee's Action Item Tracking (AIT) system. The inspectors review of selected issues concluded that issues were being adequately and timely resolved.

S2 Status of Security Facilities and Equipment (71750)

On September 2, the inspectors observed the performance of surveillance procedure 34IT-OPS-003-0S, "Security Power System Test," Rev. 6. The two Plant Equipment Operators performing the surveillance had the procedure in hand and methodically followed the instructions step by step. The inspectors identified no deficiencies during the performance of the test.

V. Management Meetings and Other Areas**X1 Exit Meeting Summary**

The inspectors presented the inspection results to members of licensee management at the conclusion of the inspection on September 18, 1998. The licensee acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

X2 Other NRC Personnel On Site

On August 6 and 7, 1998, Mr. Pierce Skinner, Branch Chief, Division of Reactor Projects, visited the site. He met with licensee managers and toured the plant with the members of the resident inspector staff. He also attended the exit meeting held with the licensee by the resident staff on August 7. Mr. Skinner visited the site again on September 1, 1998. During this visit, he attended the monthly County Commissioner meetings held in Toombs (Lyons, GA) and Appling (Baxley, GA) Counties. He made brief opening remarks and introduced the recently assigned Plant Hatch Senior Resident Inspector.

On August 24 and 25, 1998, Mr. H. Berkow, Director, Project Directorate II-2, and Mr. L. Olshan, Senior Licensing Project Manager, Hatch visited the site. They met with the resident inspector staff and discussed plant status, licensee performance and generic issues. They also toured the plant and met with licensee management to discuss plant performance and regulatory issues.

PARTIAL LIST OF PERSONS CONTACTED**Licensee**

Anderson, J., Unit Superintendent
 Betsill, J., Assistant General Manager - Operations
 Breitenbach, K., Engineering Support Manager - Acting
 Curtis, S., Unit Superintendent
 Davis, D., Plant Administration Manager
 Fornel, P., Plant Maintenance and Modification Manager
 Fraser, O., Safety Audit and Engineering Review Supervisor
 Gooze, M., Performance Team Manager
 Hammonds, J., Operations Support Superintendent

Kirkley, W., Health Physics and Chemistry Manager
 Lewis, J., Training and Emergency Preparedness Manager
 Madison, D., Operations Manager
 Moore, C., Assistant General Manager - Plant Support
 Roberts, P., Outage and Planning Manager
 Thompson, J., Nuclear Security Manager
 Tipps, S., Nuclear Safety and Compliance Manager
 Wells, P., General Manager - Nuclear Plant

INSPECTION PROCEDURES USED

IP 37551: Onsite Engineering
 IP 55050: Nuclear Welding General Inspection Procedure
 IP 60705: Preparation for Refueling
 IP 60710: Refueling Activities
 IP 61726: Surveillance Observations
 IP 62701: Operational Status of the Emergency Preparedness
 IP 62707: Maintenance Observations
 IP 71707: Plant Operations
 IP 71750: Plant Support Activities
 IP 73753: Inservice Inspection
 IP 83726: Control of Radioactive Materials and Contamination
 IP 83729: Occupational Exposure During Extended Outages
 IP 83750: Occupational Radiation Exposure Reactor Facilities
 IP 92702: Followup on Corrective Action For Violations and Deviations
 IP 92901: Followup - Plant Operations
 IP 92902: Followup - Maintenance
 IP 92903: Followup - Engineering
 IP 92904: Followup - Plant Support
 IP 93702: Prompt Onsite Response to Events at Operating Power Reactors

ITEMS OPENED, CLOSED, AND DISCUSSED

Closed

50-366/97-12-02	VIO	Failure to Implement Changes to Vendor Manual (Section O8.1)
50-321, 366/98-01-01	IFI	Maintenance Rule Periodic Assessment (Section M8.1)
50-366/98-01-02	VIO	Failure to Follow Maintenance Procedures (Section M8.2)
50-321, 366/97-03-05	IFI	Review of 4160 VAC Wiring Separation Deficiencies (Section E8.1)
50-366/98-01-03	VIO	Failure to Follow Engineering Test Procedures (Section E8.2)

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| 50-321, 366/97-12-05 | VIO | Failure to Include Nitrogen Valves in a Test Program In Accordance With 10 CFR 50, Section XI of Appendix B, Test Control (Section E8.3). |
| 50-321, 366/97-12-06 | VIO | Insulation on Nitrogen Supply Piping Not Installed In Accordance With Drawings (Section E8.3) |
| 50-321, 366/96-15-05 | VIO | Failure to Follow Procedures for Radiation Control Activities (Section R8.1). |
| 50-321, 366/98-01-09 | VIO | Failure to Follow Procedure for Analysis of a Grab Sample (Section R8.2) |