U.S. NUCLEAR REGULATORY COMMISSION

REGION II

Docket Nos:	50-321, 50-366
License Nos:	DPR-57 and NPF-5
Report No:	50-321/97-09, 50-366/97-09
Licensee:	Southern Nuclear Operating Company, Inc. (SNC)
Facility:	E. I. Hatch Units 1 & 2
Location:	P. O. Box 439 Baxley, Georgia 31513
Dates:	August 17 - October 4, 1997
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Enclosure 2

EXECUTIVE SUMMARY

Plant Hatch, Units 1 and 2
NRC Inspection Report 50-321/97-09 50-366/97-09

This integrated inspection included aspects of licensee operations, engineering, maintenance, and plant support. The report covers a 7-week period of resident inspection activities.

Operations

- During Unit 2 startup activities on September 18, operator procedure usage, communications, control of activities, and supervisory oversight during these activities were excellent. Equipment problems such as control rods that were difficult to withdraw, turbine vibration problems during turbine roll, and main generator automatic voltage regulator problems challenged operators (Section 01.1).

- Equipment alignment, component operability, and material conditions observed during a walkdown of the Unit 1 Standby Gas Treatment System were good in all areas inspected. Housekeeping conditions in the filter train room adjacent to Unit 1 Heating Ventilation and Air Conditioning room were excellent (Section 02.1).

- Unit 1 systems responded properly following a trip of the 1A Reactor Feed Pump Turbine (RFPT) and subsequent Reactor Recirculation Runback on September 6. Operator response to the plant transient was good (Section 04.1).

- Operations supervision failed to allow applicable procedures to correctly generate a Maintenance Work Order (MWO) package for a Reactor Manual Control system relay replacement. Operations supervision authorized work and maintenance personnel performed work using the incorrectly completed work package. This was identified as an example of Violation (VIO) 50-321, 366/97-09-01, Failure to Follow Procedure - Multiple Examples (Section 04.2).

- The inspectors concluded that the operating crew's performance resulted in additional challenges during a normal reactor manual scram. Operations management prompt actions to correct an operating crew's weaknesses following a routine manual scram on Unit 2 was good (Section 04.3).

- Operations demonstrated poor oversight and coordination of the battery charger transfer activity. A plant equipment operator failed to properly follow procedures governing continuous activities that affected the operability of Emergency Diesel

Generator 2A and 2C 125-volt direct current subsystems. This failure to follow procedures was identified as an example of VIO 50-321, 366/97-09-01, Failure to Follow Procedure - Multiple Examples (Section O8.2).

Maintenance

- Routine maintenance activities were generally completed in a thorough and professional manner. No deficiencies were identified by the inspectors for the maintenance activities observed (Section M1.1).

- Maintenance department response to the Rod Position Indicating System (RPIS) problem on Unit 1 was timely and engineering support of the maintenance activity was excellent. Operator actions for the failed RPIS were appropriate (Section M1.2).

- Maintenance and engineering support following the 1A Emergency Diesel Generator failure to start on September 4 was excellent. The review of past performance and repair history for the failed fuel oil check valves that resulted in additional check valve replacements, demonstrated conservative decision making by the licensee (Section M1.3).

- Management's oversight and pre-job planning for the forced outage on the Unit 1 main steam isolation valve limit switch adjustment was good. Craft personnel performed the work activity in a professional and timely manner. Health Physics personnel demonstrated a pro-active attitude by identifying the Low Pressure Coolant Injection check valve leak and notifying maintenance (Section M1.4).

- Maintenance personnel's attention-to-detail during a walkdown which discovered broken pieces of the Unit 2 High Pressure Coolant Injection (HPCI) flange bushing was superior. Engineering support of maintenance was excellent. Foreign Material Exclusion control measures were satisfactory (Section M2.1).

- Maintenance and engineering oversight of the intake structure dredging activities was excellent. Foreign material exclusion and security control measures were appropriate. Communications and departmental coordination was good (Section M2.2).

- For the surveillances observed, all data met the required acceptance criteria and the equipment performed satisfactorily. The performance of the personnel conducting the surveillances was generally professional and competent (Section M3.1).

- The American Society of Mechanical Engineers (ASME) Section XI code requirements for visual inspections were met for the strap welding on the Unit 2 Safety Relief Valves. A procedurally required VT-1 inspection was not completed following work on the B feedwater check valve hinge pin for Unit 2. This was identified as an example of VIO 50-321, 366/97-09-01, Failure to Follow Procedure - Multiple Examples (Section M3.2).

- The licensee had taken appropriate actions to correct the TIP System ASME code, Class 2 issues. The GE Code requirements of the TIP equipment installed were equivalent to those of the ASME Code. The proposed UFSAR revision was appropriate (Section M3.3).

- The inspectors concluded that Safety Audit and Engineering Review (SAER) audit 97-SA-3, Technical Specification Administrative Control Implementation, was conducted by trained and qualified personnel. The audit was thorough and detailed. The corrective actions and proposed completion dates were appropriate for the findings (Section M7.1).

Engineering

- The inspectors concluded that the licensee was making progress in resolving the divisional cable separation issues for both units (Section E1.1).

- The inspectors concluded that new fuel receipt, inspection, and storage were completed with appropriate oversight and control, and in accordance with applicable plant procedures. Engineering, Health Physics, and security personnel support for the activity was satisfactory (Section E4.1).

Plant Support

- The inspectors concluded that a contract Health Physics technician who left the plant site after receiving an alarm on the exit portal monitor presented minimal safety significance to the individual or to the public. The actions taken by the licensee were appropriate and no further NRC actions are planned. Based upon the fact that the individual is no longer employed at the site and site access was immediately terminated (Section R1.2).

- Management personnel had placed special emphasis for improved Health Physics and general radiation worker activities. The stop work meeting, plant tours for new contractors, and radiation worker expectations list were identified as a strength (Section R1.3).

- Overall performance during the annual emergency preparedness exercise was good. Event classifications during the exercise were correct. Operator performance in the simulator and overall performance in the operations support center was excellent (Section P4.1).

- The areas of security inspected met the applicable requirements (Section S2).

Report Details

Summary of Plant Status

Unit 1 began the report period at 100% Rated Thermal Power (RTP). End-of-cycle coast down began on September 2. On September 6, the 1A reactor feedwater pump turbine tripped during a weekly turbine test and resulted in a power reduction to 66% RTP. The unit was returned to 98% RTP, the maximum achievable power, the same day. Power was reduced on September 15, to remove the 1A feedwater pump from service due to a oil cooler leak. The unit was increased to the maximum achievable coast down power on September 17. Later on September 17, power was reduced slightly to verify turbine control valve functions. Power was returned to maximum rated the same day. The unit remained in coast down for the remainder of the report period except for routine testing activities.

Unit 2 began the report period at 100% RTP. On September 15, power was reduced to approximately 75% RTP for main steam isolation valve (MSIV) testing and was subsequently brought to Hot Shutdown due to MSIV limit switch problems. Unit startup began on September 18, and reached 100% RTP on September 22. The unit operated at this power level for the remainder of the report period, except for routine testing activities.

I. Operations

O1 Conduct of Operations

O1.1 General Comments (71707)

The inspectors conducted frequent reviews of ongoing plant operations. In general, the conduct of operations was professional and safety-conscious; specific events and observations are detailed in the section below. In particular, the inspectors observed that during the Unit 2 startup activities on September 18, equipment problems such as control rods that were difficult to withdraw, turbine vibration problems during turbine roll, and main generator automatic voltage regulator problems challenged operators. Operator procedure usage, communications, control of activities, and supervisory oversight during these activities was excellent.

02 Operational Status of Facility and Equipment

02.1 Engineered Safety Feature (ESF) System Walkdown

a. Inspection Scope (71707)

The inspectors performed an inspection of the accessible portions of the Unit 1 standby gas treatment (SBGT) system. This included verification of valve alignment, instrumentation, condition of components in service, and general housekeeping for both trains of the system.

b. Observations and Findings

The inspectors reviewed applicable Piping and Instrumentation Diagrams (P&IDs) and filter train operability verification procedures in use for the Unit 1 SBGT system. System control switches, valves and dampers were verified to be in the correct positions. Proper operation of control room flow recorders and indications were confirmed following routine atmospheric venting of the primary containment using the "A" SBGT filter train.

c. Conclusions

Equipment alignment, component operability, and material condition were good in all areas inspected. Housekeeping conditions in the filter train room adjacent to Unit 1 Heating Ventilation and Air Conditioning room were excellent.

04.0 Operator Knowledge and Performance

04.1 1A Reactor Feedpump Turbine (RFPT) Trip During Routine Turbine Testing

a. Inspection Scope (71707) (92901)

The inspectors reviewed procedure 34IT-N21-003-1S, "RFPT Weekly Test", Revision (Rev.) 4, and operator performance and plant response following a 1A RFPT trip on September 6.

b. Observations and Findings

Licensee management had deferred routine RFPT testing during hot weather conditions and times of peak load demand. On September 6, the 1A RFPT trip test was scheduled. This was one of the first weekly turbine tests performed following resumption of the RFPT testing. While performing section 7.3, "RFPT Oil Trip Test," the

operator stated that when he released the Overspeed Trip Test Lockout Switch, the RFPT immediately tripped. Other than the RFPT trip, there were no indications of abnormal system response. The RFPT trip caused a Reactor Recirculation System runback.

The inspectors reviewed plant data and discussed the RFPT trip with operations and management personnel. The inspectors observed that all systems responded correctly. The Reactor water level decreased to about 15 inches and a Reactor Recirculation System Runback occurred as expected. Reactor power stabilized at about 66% Rated Thermal Power (RTP). The region of potential instability of the power to flow map was never entered.

Operations personnel discussed the pump trip and later successfully completed the turbine testing on the 1A and 1B RFPT. During subsequent testing, the operators did not release the Overspeed Trip Test Lockout Switch until a few seconds had passed after receiving the green reset permissive light. Operations personnel told the inspectors that they believe that holding the Overspeed Trip Test Lockout Switch depressed for a few seconds longer may have prevented the initial trip. Reactor power was increased to maximum rated within about 1.5 hours following the RFPT trip and subsequent testing.

The licensee initiated a review of the procedure and system response to determine if possible procedure problems existed or if improvements could be made to ensure that no future RFPT trips occurred. A temporary change to clarify some procedure steps for both units was completed. The licensee concluded that the root cause of the RFPT trip was mechanical linkage not being in the proper position when the overspeed lockout switch was released. The procedure revision addressed this problem.

The inspectors observed that the testing procedure had been used numerous times in the past and no known previous problem or RFPT trips had been identified. The inspectors reviewed the procedure in detail and walked through the procedure at the local panels to ensure switch nomenclature and procedure wording were clear. No procedure deficiencies were observed.

c. Conclusions

Unit 1 systems responded properly following the trip of the 1A RFPT and subsequent Reactor Recirculation Runback on September 6. Operator response to the trip and runback was good.

O4.2 Unit 1 Reactor Manual Control System (RMCS) Relay Replacement

a. Inspection Scope (71707) (62707)

On August 15, Operations supervision prepared a maintenance work order (MWO) for the replacement of a failed relay associated with the RMCS on Unit 1. The MWO was provided to maintenance personnel as guidance for component replacement. The inspectors reviewed applicable procedures and other documentation associated with the work activity.

b. Observations and Findings

On August 15, while performing surveillance procedure 34SV-C11-003-1S, "Control Rod Weekly Exercise," Rev. 10, Edition (ED) 1, the control rods in row 34 could be selected but would not actuate the RMCS for manual insertion. Troubleshooting activities by maintenance personnel revealed that relay 1C11-K033 had failed and required replacement.

Operations supervision on shift prepared MWO 1-97-1979 and granted approval for the maintenance technician to replace the relay. The MWO prepared and approved was not properly completed. The MWO did not have any work instructions or procedural references, and other items of importance were not indicated. The inspectors reviewed the MWO that was used by the maintenance technician and observed that the technician documented the work performed on the MWO. The technician documented that the K033 relay was defective, had been replaced with a new one, and the RMCS operated satisfactorily.

A later review by maintenance personnel identified several discrepancies with the MWO and initiated a deficiency card. The inspectors reviewed the deficiency card that identified the discrepancies on the MWO used by the technician to replace the failed relay. Also, reviewed was a second MWO with the same control number that was prepared after the relay replacement. This MWO corrected the discrepancies identified for the earlier MWO.

The inspectors reviewed MWO 1-97-1979 to determine if the requirements of Administrative Control procedure 50AC-MNT-001-0S, "Maintenance Program," Rev. 25, were met for the maintenance work activities. The following discrepancies were identified:

- Step 4.2.5 of the procedure required, in part, that plant maintenance be performed and controlled within the boundaries of "work instructions" of MWOs and/or procedures. Work instructions were not provided to replace a failed RMCS relay.

- Section 8.2.2 and sub-step 8.2.1.2 required, in part, that block 23 of the MWO state a specific scope of work using referenced material as applicable. The MWO failed to enter the specific scope of work and references in block 23 of the MWO.

- Step 8.5.1 requires, in part, that prior to the start of plant maintenance, the responsible personnel will perform a cursory review of the MWO package to ensure the contents are adequate. Responsible operations and maintenance personnel did not ensure that the contents of the MWO package were adequate.

c. Conclusions

The inspectors concluded that operations supervision failed to follow applicable procedures to correctly generate a MWO package for a RMCS relay replacement. Additionally, operations supervision authorized work and maintenance personnel performed work using the MWO. Operations and maintenance personnel failed to ensure that the MWO package contents were adequate. This was identified as an example of Violation (VIO) 50-321, 366/97-09-01, Failure to Follow Procedure - Multiple Examples.

O4.3 Operator Performance During Normal Plant Shutdown

a. Inspection Scope (71707)

The inspectors reviewed an operating crew's performance and management's corrective actions following deficiencies identified during a forced outage of Unit 2 on September 15.

b. Observations and Findings

Unit 2 was being shut down to conduct a drywell entry to adjust inboard main Steam Isolation Valve (MSIV) limit switches. Maintenance activities associated with the limit switch adjustments are discussed in Section M1.4 of this Inspection Report (IR). Following a manual scram from about 20% power, reactor water level increased to about 88 inches, at which time operators closed the MSIVs. About 36 inches is the normal reactor water level. Maintaining an approximately normal reactor water level is generally not a problem during a manual scram condition from low power, and the MISVs are not normally closed during routine shutdowns. Closing the MSIVs isolated the RFPT (normal water control system) steam supply and the main condenser for normal pressure control. These actions can complicate a routine manual scram and present additional challenges to the operating crew. The operators stated that they closed the MSIVs to prevent exceeding the reactor vessel cooldown rate. The potential for

exceeding the vessel cooldown rate was due to abnormally high water level. Following the MSIV closure at 4:42 p.m. the Reactor Core Isolation Cooling System (RCIC) was manually placed in service for reactor pressure control. The MSIVs were reopened at 6:40 p.m. and normal pressure control was established.

The inspectors discussed the operating crews performance with operations management. The inspectors were informed that the performance of the operating crew did not meet managements expectations. Operations management stated that the operators' response to changing reactor water level was slow. Management personnel also stated that operations personnel were slow to reset the reactor scram and this also contributed to the high reactor water level.

Operations management and the operating crew conducted a critique of the crew performance and unit response using unit chart recorders and the safety parameter display system tape information. Management stated the crew acknowledged that their performance could be improved. As part of the corrective actions, simulator training was provided to the crew to practice similar manual scram conditions. Additionally, low power reactor shutdowns will be evaluated for inclusion into the regularly scheduled operator license requalification training.

c. Conclusions

The inspectors concluded that the operating crew's performance resulted in additional challenges during a normal reactor manual scram. Operations management prompt actions to correct an operating crew's weaknesses following a routine manual scram on Unit 2 was good.

O4.4 Review of Unit 2 Emergency Diesel Generator (EDG) Battery Charger Transfer

a. Inspection Scope (71707) (92901) (62707)

The inspectors reviewed the circumstances associated with an activity on September 11, when a plant equipment operator (PEO) improperly transferred battery chargers for the 2A and 2C Emergency Diesel Generator (EDG) 125-Volt Direct Current (VDC) subsystems, rendering both subsystems inoperable. The inspectors reviewed the applicable procedures, control room logs, TSs, MWOs, and discussed this problem with licensee management.

b. Observations and Findings

The control room logs indicated that the unit shift supervisor had authorized a maintenance electrician to conduct preventive maintenance (PM) on battery charger feeder breakers in accordance with MWO 29701339. In order to facilitate taking the battery chargers out of service to perform the PM, the electrician requested the assistance of the outside roving PEO to transfer battery chargers. The PEO performed the transfer without using procedure 34SO-R42-001-2S, "125/250 VDC Station Service Charger Rotation & Breaker Racking," and failed to connect the in-service battery chargers to their respective 125 VDC cabinets. As a result, both EDG 125-VDC subsystems were left misaligned with control power being provided by the EDG batteries.

Control room operators subsequently received an annunciator for "Battery Volts Low or Fuse Trouble" for both the 2A and 2C EDGs. An operator was dispatched to investigate the problem. Normal battery charger alignment was restored; however, the misaligned battery chargers had rendered the 125-VDC subsystems inoperable for a total of 36 minutes. Engineering conducted an analysis and determined that a loss of function of the 2A and 2C 125-VDC systems did not occur due to the fact that the total energy loss from the batteries was only 2 amp-hours, compared to load profiles of 66 amp-hours and 37 amp-hours for the 2A and 2C DC subsystems, respectively.

The inspectors reviewed procedure 34SO-R42-001-2S, Rev. 4, which is classified as a "continuous use" procedure in accordance with 10AC-MGR-019-0S, "Procedure Use and Adherence," Rev. 0. Specifically, MGR-0190OS stated, in part, that a "continuous use" procedure is required at work activities that affect safety-related system operability, and that procedure steps will be reviewed, read, and initialed during the activity. The inspectors verified that the procedure was adequate to perform the DC system transfers for the EDGs.

The inspector's review indicated that at the pre-job briefing, the Unit 2 shift supervisor had designated a performance team PEO to perform the battery charger transfers. This PEO was never in attendance at the pre-job briefing, nor was the PEO who subsequently performed the improper transfer.

In addition, a review of the operations logs revealed that the shift supervisor documented the maintenance being performed under MWO 29701339 as "Battery Charger Clean and Inspect," when the actual maintenance was to clean and inspection of the battery charger feeder breakers. The inspectors determined that operations' oversight and coordination of the battery charger transfer evolution was poor.

c. Conclusions

Operations demonstrated poor oversight and coordination of the battery charger transfer activity. A PEO failed to properly follow procedures governing continuous use activities that affect the operability of EDG 2A and 2C 125-VDC subsystems. This failure to follow procedures was identified as an example of Violation (VIO) 50-321, 366/97-09-01, Failure to Follow Procedure - Multiple Examples.

O8 Miscellaneous Operations Issues (92901) (82301)

O8.1 (Closed) IFI 50-321, 366/96-13-04: Inability to Correctly Classify Events. This IFI was initiated following misclassification of events during simulator scenarios observed during a licensed operator requalification program assessment. The licensee revised procedure 73EP-EIP-001-0S, "Emergency Classification and Initial Actions," to improve usability and increase training emphasis on event classifications. Based upon the inspectors' review of licensee actions and demonstrated improvements in simulated event classifications, this item is closed.

O8.2 (Closed) LER 50-366/97-09: Removal of DG Battery Chargers From Service Results in Inoperability of Both the 2A and 2C DG DC Electrical Power Subsystems. This LER is discussed in Section O4.4 of this IR. Based upon the inspectors review of licensee actions, this item is closed.

II. Maintenance

M1 Conduct of Maintenance

M1.1 General Comments

a. Inspection Scope (62707)

The inspectors observed or reviewed all or portions of the following work activities:

- MWO 1-97-2223: replace RPIS 28 volt power supply
- MWO 1-96-2099: reblock 1B EDG generator winding at next outage
- MWO 1-96-3225: inspect 1B EDG engine per applicable 6-year PM procedures
- MWO 1-97-1998: perform inspection of 1B EDG jacket coolant pump in accordance with procedure 52PM-R43-017-0S
- MWO 1-96-4145: perform 18-month grease inspection on HPCI CST suction valve 1E41-F004

b. Observations and Findings

The inspectors found that the work was performed with the work packages present and being actively used.

c. Conclusions

Maintenance activities were generally completed in a thorough and professional manner. No deficiencies were identified by the inspectors for the maintenance activities observed.

M1.2 Rod Position Indicating System (RPIS) and Drywell-to-Torus Vacuum Breaker Problems on Unit 1

a. Inspection Scope (62707) (37551) (71707)

The inspectors observed portions of the work activities associated with the replacement of the 28-volt RPIS power supply and discussed the activity with the system engineer. Discussions were also conducted with operations' management concerning the opening of a drywell-to-torus vacuum breaker during drywell venting activities. Additionally, the inspectors reviewed the Technical Specifications (TSs), Technical Requirement Manual (TRM), abnormal operating procedure, MWO 1-97-2223, and applicable work packages associated with the problems.

b. Observations and Findings

Unit 1 entered TRM Action Statement, Section T3.3.3, on September 16, due to an inoperable RPIS. The TRM Action Statement required that the unit be in Mode 3 (Hot Shutdown) within 12 hours. The RPIS became inoperable due to a failed 28-volt power supply. The operators lost a portion of the full core display panel. Operators were able to determine control rod positions using the process computer. The manual and automatic shutdown functions of the control rods were still operable.

Similar RPIS and drywell-to-torus vacuum breaker (DW/torus) problems occurred on June 30 and July 20. The 5-volt power supply had failed for the RPIS system and the 1T48-F323F DW/torus vacuum breaker had failed to close due to mechanical binding. Details of these problems are documented in section 01.3 of Inspection Report (IR) 50-321, 366/97-07.

The inspectors observed a portion of the RPIS power supply replacement activity and its return to service. The system indicating lights operated properly and the RPIS functioned properly.

Engineering personnel informed the inspectors that the current 5-volt and 28-volt RPIS power supplies are obsolete and a design change to replace the existing power supplies is being prepared. The design change will be installed in the future.

On September 15, during drywell (DW) venting activities, the 1T48-F323A DW-to-torus vacuum breaker opened and would not close. Operations personnel entered the correct TS Required Action Statement (RAS), 3.6.1.8, Suppression Chamber-to-Drywell Vacuum Breakers. This TS requires that the vacuum breaker be closed within two hours. The operating crew aligned the SBGT system to take suction from the torus as allowed by procedure and the vacuum breaker closed within the required two hours. The TS RAS for the opened vacuum breaker was terminated.

Operations management informed the inspectors that the operating crew allowed the DW-to-torus differential pressure (DP) to become lower than desired during DW venting activities. The F323A vacuum breaker has a history of opening sooner than the other vacuum breakers, and it opened at the higher DP. Operations management further informed the inspectors that a night order was written for the operators to use during drywell venting activities. The night order instructed the operators to keep the DW-to-torus DP greater than 0.2 pounds per square inch differential (psid). The TS opening setpoint is less than or equal to 0.5 psid. The inspectors reviewed the night order and system operating procedure 34SO-T48-002-1S, "Containment Atmospheric Control and Dilution," Rev. 16, and no deficiencies were identified.

The inspectors also reviewed Section T3.3.3 of the TRM and abnormal operating procedure 34AB-C11-002-1S, "RPIS Failure," Rev. 1, Edition (ED) 1, to verify that the appropriate actions were taken by the operating crew. The inspectors reviewed MWO 1-97-2223, which provided instruction for the replacement of the 28-volt RPIS power supply. No deficiencies were identified.

c. Conclusions

Maintenance's response to the RPIS problem was timely; engineering support of the maintenance activity was excellent; and operations personnel took the appropriate actions for the RPIS failure.

M1.3 1A Emergency Diesel Generator Failure To Start During Surveillance Test

a. Inspection Scope (61726) (92902)

The inspectors reviewed applicable maintenance procedures, associated MWOs, and work packages associated with the repair of the 1A EDG following a failure to start on September 4, 1997. The inspectors discussed the EDG failure with operations, maintenance, and engineering personnel.

b. Observations and Findings

During the performance of surveillance test 34SV-R43-001-1S, "Diesel Generator 1A Monthly Test," Rev. 17, ED1, the 1A EDG failed to start. Operations personnel contacted maintenance for their assistance in troubleshooting activities. Operations declared the EDG inoperable and initiated the correct TS RAS. The maintenance investigation revealed that the fuel oil check valve had stuck in the open position. This check valve is on the down stream side of the injectors and allowed the fuel oil to drain from the fuel oil header back into the clean fuel oil drain tank. As a result an inadequate supply of fuel oil existed for the EDG start.

Maintenance replaced the check valve and the EDG surveillance was successfully completed. Maintenance and engineering personnel conducted a review of pa performance and repair history for the check valves and issued a engineering evaluation to document the results of the review. The inspectors reviewed the engineering evaluation and other licensee documentation and observed the following:

- In 1987, all check valves (one for each of the five EDGs) were replaced due to suspected problems.
- From the total of five valves, two valves had 10 years or more of service life with no problems. Check valves for EDGs 2A and 2C were replaced in 1987 and in March 1997, respectively, with no problems observed.
- One valve had five years of service life with no problems. The check valve for EDG 1B was replaced in October 1992 and August 1997, with no problems observed.
- One valve had less than five years of service life with one failure.
- The check valve for EDG 1A was replaced in April 1993 and had failed in September 1997.

Maintenance personnel inspected the check valve installed in the 1C EDG and discovered that it was also open. The check valve was replaced, and post-maintenance testing was successfully performed. The check valve had been replaced in March 1993.

The engineering evaluation recommended that the check valves be replaced every five years, however, maintenance management was evaluating whether or not the frequency should be every 18 months. The inspectors were informed that the check valve was suspected of causing sluggish EDG start times in 1987. The inspectors were not aware of any recent operability concerns or sluggish EDG start problems.

c. Conclusions

Maintenance and engineering support following the 1A Emergency Diesel Generator failure to start on September 4, was excellent. The review of past performance and repair history for the failed fuel oil check valves that resulted in additional check valve replacements demonstrated conservative decision making.

M1.4 Unit 2 Forced Outage

a. Inspection Scope (62707)

The inspectors reviewed applicable procedures and MWOs associated with the main steam isolation valve (MSIV) limit switches on Unit 2. Limit switch adjustments were discussed with maintenance, engineering, and operations personnel. Additionally, the inspectors reviewed procedures applicable to the repairs performed on the low pressure coolant injection (LPCI) check valve during the forced outage and discussed the repairs with maintenance management and engineering personnel.

b. Observations and Findings

On September 14, while performing quarterly MSIV surveillance procedure 34SV-B21-001-2S, "MSIV Exercise and Closure Instrument Functional Test," Rev. 5, ED 1; the 2C71-K3G and 2C71-K3H relays failed to re-energize when the 'D' inboard MSIV was returned to its fully opened position. Because a similar relay associated with the 'B' MSIV was already de-energized due to a similar failure during the previous surveillance, a half scram resulted which the operators were unable to reset. The failure of the relay associated with the 'B' inboard MSIV is documented in Section M1.3 of IR 50-321, 366/97-07.

The licensee decided to bring the unit to Hot Shutdown for entry into the drywell to inspect and/or adjust the limit switches that provide the signal to the relays that failed to re-energize.

Maintenance work was completed for limit switch adjustments and unit startup was commenced on September 18. The unit achieved 100% RTP on September 22.

Due to the failure of the relays to reset on September 14 and on June 22, the licensee initiated a root cause investigation of the MSIV limit switch problems. The licensee root cause investigation concluded that the limit switch setup methodology was a possible contributor to the problem. The limit switch reset positions criteria was not specified by procedure and was left to the judgement of the electrician performing the work. A new type of limit switch was installed during the last unit refueling outage and craft judgement was again used to set the limit switch reset positions. However, small changes in valve stroke length (due to unknown causes) when steam flowed through the MSIV may have prevented the limit switches from resetting when the MSIV was very close to the valve full-open position. Maintenance personnel also determined that the new limit switch reset position was not consistent and predictable like the previous limit switches. The root cause investigation report recommended that the maintenance department revise applicable procedures to include specific instructions on limit switch reset positions.

The inspectors reviewed surveillance procedure 52SV-B21-001-0S, "MSIV Limit Switch Inspection," Rev. 4. The revision of the procedure included an addition which required a confirmation that the MSIV limit switch resets when the MSIV is taken back to the fully opened position. Other procedure steps were either deleted or added to the preventive maintenance procedure.

Health Physics personnel identified a leak on the Low Pressure Coolant Injection (LPCI) check valve 2E11-F050B upon initial entry into the drywell for the MSIV limit switch adjustment work activity. The valve was leaking steam from the hinge pin area. Maintenance attempted to stop the leak by torquing the hinge pin. The valve was repacked after the torquing failed to stop the leak.

c. Conclusions

Management's oversight and pre-job planning for forced outage activities on the MSIV limit switch adjustment was good. Craft personnel performed the work activity in a professional and timely manner. Health Physics personnel demonstrated a pro-active attitude by identifying the LPCI check valve leak and notifying maintenance.

M2 Maintenance and Material Condition of Facilities and Equipment

M2.1 Inoperable Unit 2 High Pressure Coolant Injection (HPCI) Pump

a. Inspection Scope (62707)

On August 18, the Unit 2 HPCI pump was declared inoperable due to a broken flange bushing that was discovered by maintenance personnel. The inspectors reviewed applicable drawings, procedures, TS, MWOs, Licensee Event Reports (LER), and the Updated Final Safety Analysis Report (UFSAR) associated with repairs of the pump. The inspectors also held discussions with involved maintenance, engineering, and vendor personnel.

b. Observations and Findings

On August 18, during a routine housekeeping walkdown of the HPCI system, maintenance personnel discovered pieces of metal in the shaft drain casing of the HPCI main pump. The metal pieces were from the pump shaft flange bushing (six pieces) and one of the shaft's split rings. The flange bushing is designed to limit the water flow from the shaft of the pump in the event of a catastrophic failure of the mechanical seal. The split ring is one of two semicircular rings that assists in maintaining the shaft sleeve in proper alignment.

Operations personnel declared the HPCI system inoperable after being informed of the damage. The RAS of TS 3.5.1, Condition C, was entered. The required 10 CFR 50.72 notification was made to the NRC.

The inspectors observed the disassembly of the bearing housing and removal of pump shaft components during the inspection/repair activities. The inspectors observed that the lubricant piping removed was not immediately sealed for foreign material exclusion (FME) control. The inspectors observed that sawing activities of metal components were in progress in the immediate area and had the potential of FME contamination. Maintenance personnel eventually taped the lubricant piping for FME protection. The inspectors were later informed that the piping and components were flushed and cleaned prior to installation.

The inspectors observed the recovered pieces of the bushing flange. It was noted by the inspectors that all pieces necessary to reconstruct the flange bushing were not present. The inspectors were informed by maintenance personnel that six pieces of the flange bushing were recovered and the remaining missing part or parts were not found. A search of the immediate area was conducted but did not locate the missing parts.

The licensee contacted the pump vendor to assist with the failure mechanism determination. The inspectors discussed the possible cause of the flange bushing failure with the vendor representative. The vendor representative informed the inspectors that he suspected that shaft movement caused by the bearing failure on the shaft between the main pump and the booster pump allowed the shaft to rub against the flange bushing, thus causing a failure of the flange bushing.

The licensee suspected that the bearing failed due to a small amount of particles that contaminated the main pump journal bearing housing. This caused damage to the bearing babbitt material which led to increased pump vibration sufficient in magnitude to cause the shaft to impact, crack, and break the flange bushing and displace the split ring retainer. The licensee indicated that the damage to the seal likely occurred during the performance of the HPCI operability surveillance performed on August 11, but was unable to determine the source and type of contamination that caused the bearing damage.

The inspectors reviewed the data package for the most recently performed operability surveillance procedure; 34SV-E41-002-2S, "HPCI Pump Operability," Rev. 26, and noted that the main pump inboard horizontal vibration (point H03) was in the alert range. This required the operability test to be performed at double the normal frequency.

A review of MWO 2-96-0024 by the inspectors indicated that a small water leak at the mechanical seals had been identified earlier. Since the leak did not affect pump operability, the work for the mechanical seal repair/replacement was initially deferred until the next Unit 2 refueling outage. The MWO was revised to include the work scope for the replacement of the damaged bearing, the flange bushing and the split ring. All work was performed and the HPCI system was returned to an operable status on August 24.

The inspectors reviewed LER 50-366/97-08, Main Pump Journal Bearing Damage Renders HPCI System Inoperable. As part of the corrective actions, the licensee inspected and replaced the inboard and outboard main pump bearings and rebuilt the pump shaft bearing. The damaged outboard main pump mechanical seal was replaced and the bearing lubrication oil system was drained, flushed, and cleaned. The lubricating oil system filters were also replaced. Following system repairs, maintenance engineering personnel confirmed that vibration levels and alignment of the turbine and main pump were within acceptable tolerances.

The inspectors reviewed vendor drawings S-25084, "HPCI Pump-Sectional-GE VPF #3076-13," and the associated drawing for the mechanical seals. Additionally, Unit 2 UFSAR Section 7.3.1.2.1, High Pressure Coolant Injection System Instrumentation and Control, was reviewed. No discrepancies were identified.

c. Conclusions

Maintenance personnel's attention-to-detail during the walkdown which discovered the broken pieces of the HPCI flange bushing was superior. Engineering support of maintenance was excellent. FME control measures were satisfactory.

M2.2 Intake Structure Dredging Activities

a. Inspection Scope (62707)

The inspectors observed activities associated with the dredging and cleaning of the intake structure water pit. The inspectors also reviewed MWO 1-97-1453 and the data package of procedure 52PM-MME-006-0S, "Intake Structure Pit Inspection," Rev. 6. Discussions were conducted with maintenance supervision and engineering. A representative sampling of clearance tags was verified.

b. Observations and Findings

On September 26, the inspectors observed activities associated with the preparation to dredge and clean the intake structure pit. The inspectors observed that a FME area boundary had been established inside the intake structure on the ground level and FME was properly controlled.

The inspectors verified that a representative sampling of the clearance tags associated with the work activity was properly placed.

The inspectors discussed communication aspects of this activity with engineering and maintenance supervision. The inspectors observed that communications had been established with the divers, the divers' attendant, the control room, and with a member of the diving team that was located on the dredge platform.

The dredge platform was afloat on the river with a suction hose that ran through an opening in the travelling screens. The opening was made by removing necessary sections of the traveling screen. The opening in the travelling screen was large enough to insert an 8-inch diameter suction line into the pump suction pit area. Security personnel appropriately monitored the area.

A review of MWO 1-97-1453 and the data package for procedure 52PM-MME-006-0S revealed that the intake pit dredging and cleaning activity was completed by the divers on October 2. The divers had cleaned the pit to an acceptable level per the requirements of procedure 52PM-MME-006-0S.

c. Conclusions

The inspectors concluded that maintenance and engineering oversight of the activities was excellent. FME and security control measures were appropriate. Communications and departmental coordination was good.

M3 Maintenance Procedures and Documentation

M3.1 Surveillance Observations

a. Inspection Scope (61726)

The inspectors observed various surveillance activities. The procedures to accomplish the activities provided instructions for demonstrating that the referenced safety-related equipment functioned as required by TSs and the Inservice Testing program.

b. Observations and Findings

The inspectors observed all or portions of the following Unit 1 and Unit 2 surveillance activities:

- 34SV-E11-001-1S: Residual Heat Removal Pump Operability, Rev. 20, ED 1
- 34SV-E41-002-1S: HPCI Pump Operability, Rev. 21
- 34SV-R43-003-2S: Diesel Generator 2C Monthly Test, Rev. 18
- 34SV-SUV-018-1S: ECCS Status Checks, Rev. 6
- 57SV-N62-001-2S: Off Gas Hydrogen Analyzer FT&C, Rev. 10

The inspectors attended the pre-evolution briefing for all of the surveillance activities. During the Unit 1 HPCI operability briefing, appropriate precautions were emphasized by the Unit 1 Shift Supervisor regarding torus temperature. Communications between maintenance, engineering, operations, and HP personnel were excellent. The inspectors observed that, during the test, operations personnel were very cognizant of monitoring suppression pool temperature. Coordination between the test lead operator and the shift operator when placing the RHR system in the suppression pool cooling mode was good.

The inspectors observed that during the Unit 1 RHR operability pre-evolution briefing, the lead operator appeared unfamiliar with specific aspects of the test as they related to items on the

pre-evolution checklist. Specifically, the operator was unsure of what permission was required to initiate this surveillance, whether FME would be a concern, and whether or not a post-evolution briefing would be conducted to discuss results of the test. The inspectors discussed this observation with operations management.

During the Unit 1 RHR pump operability test, the inspectors observed that operations personnel collected In Service Testing (IST) vibration readings at two points on the motor mounting flange in the radial direction, but took no axial vibration readings. Discussions with the licensee's IST engineer and a review of the RHR pump IST plan revealed that these pumps were not equipped with thrust bearings, therefore axial vibration readings were not required.

The inspectors examined the IST test data for the 1A RHR pump and verified that reference parameters were correctly extracted from the Unit 1 IST data book. No deficiencies were identified.

c. Conclusions

For the surveillance activities observed, all data met the required acceptance criteria and equipment performed satisfactorily. The surveillance tests were conducted in accordance with procedures and with oversight from supervisors and system engineers. With minor exceptions, all involved personnel were knowledgeable of the tests and system performance requirements. Overall, performance was professional and competent.

M3.2 Review of The American Society of Mechanical Engineers (ASME) Code Visual Examinations for Unit 2

a. Inspection Scope (62707) (92902)

The inspectors reviewed the work packages for maintenance activities performed during the Unit 2 Spring Outage of 1997. This review was to ascertain whether applicable visual examinations, as required by Section XI of the ASME code, were met. The inspectors conducted discussions with Quality Control (QC) supervision and engineering. Additionally, the inspectors reviewed the following plant procedures:

- Engineering Service Procedure 42EN-ENG-014-0S, "ASME Section XI Repair/Replacement," Rev. 9.

- Quality Control Procedure 45QC-QCX-009-0S, "Quality Control Document Review and Inspection Point Assignment," Rev. 5.

- Administrative Control Procedure 40AC-QCX-001-0S, "Quality Control Inspection Program," Rev. 7.

b. Observations and Findings

The inspectors were informed by quality control (QC) supervision that a QC review of work packages for the recent Unit 2 outage (Spring 1997) revealed that some required Section XI ASME code visual inspections were not performed. The work packages in question were 2-96-0834, 2-96-0836, and 2-97-0686. The work packages were identified on deficiency card (DC) C09703695.

The inspectors discussed the work packages with engineering personnel assigned to perform the root cause determination for the deficiencies. Engineering informed the inspectors that the ASME Section XI Code-required visual inspections (VT-1 and VT-3) were performed but some were not performed per the guidance provided in procedure 42EN-ENG-014-0S.

The inspectors reviewed the three work packages listed on DC C09703695, the Root Cause Analysis Summary for the DC, and the engineering evaluation for the vendor-performed VT-1 for the feedwater check valve hinge pin installation. This review indicated the following:

- Work packages 2-96-0834 and 2-96-00836 provided work instructions for outage repair/replacement activities on safety relief valves 2B21-F013E and 2B21-F013G, respectively. The work activity in question was for the welding of a strap onto the safety relief valve to support a pilot sensing tube. The licensee treated the work activity as an ASME Section XI repair/replacement activity, thus requiring a VT-3 examination. However, the VT-3 post maintenance requirement was not listed on the Section XI Examination Plan, attachment 4, of procedure 42EN-ENG-014-0S, and the VT-3 was not completed. However, credit was taken after the fact because the QC inspector assigned to the work activities was VT-3 qualified and had performed other visual examinations on the valves. A review of the ASME Section XI code revealed that this work was not required to be treated as ASME Section XI.

- Work package 2-97-0686 provided work instructions for outage repair/replacement activities performed on feedwater inboard check valve 2B21-F010B. The work activity in question was for the installation of a new upgraded hinge pin assembly. The Quality Control Inspection Point Assignment Sheet of procedure 45QC-QCX-009-0S (generic hold point sheet) required a VT-1 based upon the repair/replacement program. This generic hold sheet was in the work package. A

documentation review revealed that an initial baseline VT-1 (prior to valve hinge pin work) was performed by site QC personnel in accordance with the repair/replacement program, but was not performed on the replacement bolting after the new hinge pin was returned to service. An engineering evaluation of the VT-1 performed by the vendor was conducted by the licensee. The evaluation concluded that the visual examinations performed by the vendor met all the requirements to fulfill the ASME Section XI pre-service examinations of a VT-1.

Procedural enhancements were recently implemented for the Section XI Examination Plan of procedure 42EN-ENG-014-0S and the Quality Control Inspection Point Assignment Sheet of procedure 45QC-QCX-009-0S. These enhancements provide more clarity as to when post repair/replacement inspections are required.

The inspectors reviewed administrative control procedure 40AC-QCX-001-0S. Step 8.6.5 of the procedure required, in part, that the qualified QC inspector perform inspections in accordance with an approved Quality Control Inspection Point Assignment Sheet (generic hold point sheet). Site QC personnel did not perform a VT-1 inspection for replacement work activities on feedwater check valve F010B during the Unit 2 spring outage of 1997 per plant procedures. Credit was taken, after an engineering evaluation, for a vendor-performed VT-1.

The inspectors reviewed licensee performance for the past two years with respect to Section XI ASME code VT inspections. A violation was identified in Inspection Report 50-321, 366/96-11 for a failure to perform an ASME Code-required VT-3 inspection on HPCI Valve 1E41-F006. The inspectors concluded that the circumstances surrounding the missed VT-3 on the HPCI valve were different and the corrective actions for that violation would not have reasonably prevented the VT-1 problem with the feedwater check valve hinge pin replacement.

c. Conclusions

ASME Section XI code requirements for visual inspections were met for the strap welding on the SRVs and the hinge pin replacement on the feedwater inboard check valve. The acceptance of credit for the VT-1 performed by the vendor for the feedwater check valve was reasonable. The inspectors concluded that site QC personnel failed to follow the requirements of plant procedures for the VT-1 listed on the generic hold inspection sheet for replacement work on the feedwater check valve hinge pin. This was identified as an example of VIO 50-321, 366/97-09-01, Failure to Follow Procedure - Multiple Examples.

M3.3 Review of Traversing Incore Probe (TIP) Flange Replacement On Unit 2

a. Inspection Scope (62707)

The inspectors reviewed procedure 42EN-ENG-014-0S, "ASME Section XI Repair/Replacement," Rev. 9, and documentation associated with ASME Code Section III, Class 2, requirements for the Unit 2 primary containment TIP penetration flanges.

b. Observations and Findings

The inspectors were informed by Nuclear Safety and Compliance (NSAC) personnel that they were conducting a review of whether or not the Unit 2 primary containment TIP penetration flanges meet ASME Code Section III, Class 2, requirements. Table 3.2-1 of the Unit 2 UFSAR lists the TIP piping as ASME Code Section III, Class 2. This included the flange, TIP tubing, and tubing valves. This review was initiated following a review of maintenance work activities conducted during the last Unit 2 refueling outage.

The inspectors reviewed E.I. Hatch Nuclear Plant - Unit 2 Safety Assessment for Primary Containment TIP Penetrations, dated September 10, 1997, and Hatch Project Support - Engineering Operability Evaluation - Unit 2 TIP Penetrations, dated September 16, 1997. The inspectors also reviewed Table 3.2-1 of the Unit 2 UFSAR.

GE had verbally informed the licensee that, even though the TIP system flanges were not what the code specified in the UFSAR, there was no operability concern with the TIP system. The licensee stated that GE informed it that other sites had identified similar problems with respect to the TIP system and that the components supplied by GE were equivalent to those required by ASME. By letter dated October 21, 1997, entitled Hatch Tip System ASME Code Compliance Evaluation, GE concluded that the portion of the TIP system that is considered part of the primary containment supplied for Hatch Units 1 and 2 during construction and as replacement parts meet the intent of ASME Section III, Class 2. The licensee also informed the inspectors that a proposed UFSAR change for table 3.2-1 was being reviewed for the next scheduled UFSAR submittal.

The inspectors reviewed applicable documentation and observed that all applicable inspection requirements of the ASME code were met following the flange installations on Unit 2.

c. Conclusions

The licensee had taken appropriate actions to correct the TIP System ASME code, Class 2 issues. The GE Code requirements of the TIP equipment installed were equivalent to those of the ASME Code. The proposed UFSAR revision was appropriate.

M7 Quality Assurance in Maintenance Activities

M7.1 Review of Safety Audit and Engineering Review (SAER) Audit Report 97-SA-3 (62707)

The inspectors reviewed audit report 97-SA-3, Ventilation Filter Train Testing, dated July 24, 1997. The audit included a review of procedures, methodology, and employee performance of testing activities for plant ventilation systems described in the Technical Specifications (TSs) and UFSARs for both units to ensure that the ventilation filter testing program was being correctly implemented. The audit included a detailed review of the TS and UFSAR requirements and the testing requirements and methodology outlined in Regulatory Guide 1.52 and ASME/ANSI N510.

The inspectors concluded that the audit was conducted by trained and qualified personnel. The audit was thorough and detailed. The inspectors observed that the audit findings identified were submitted to appropriate management and department personnel. Corrective actions were identified and tracked in accordance with applicable plant procedures. The corrective actions and proposed completion dates were appropriate for the findings.

M8 Miscellaneous Maintenance Issues (92700) (92902)

M8.1 (Closed) LER 50-366/97-08: Main Pump Journal Bearing Damage Renders HPCI System Inoperable. This item is discussed in Section M2.1 of this report. Based upon the inspectors' review of licensee actions, this LER is closed.

M8.2 (Closed) IFI 50-321, 366/96-14-02: Potential Single Failure Vulnerability in the Freeze Protection System. This item was opened to review whether or not a loss of power from Unit 1 to the freeze protection for the service water cooling piping to the 1B Emergency Diesel Generator (EDG) could impact the EDG's operability support to Unit 2. Corporate engineering reviewed the issue and determined that a potential single failure vulnerability in the freeze protection heat tracing system does not exist. Based upon the inspectors' review of the engineering evaluation, dated February 10, 1997, this item is closed.

M8.3 (Closed) IFI 50-321/96-15-04: Switchyard Maintenance and Material Condition. This item was initiated following an inspection to evaluate electrical maintenance in the switchyard as it relates to the Maintenance Rule. The following completed or long term planned corrective actions associated with the IFI were described in documentation provided by central scheduling personnel during a discussion:

- An independent review team performed a thorough housekeeping inspection of the switchyard on January 19, 1997. The inspection identified the items listed in the IFI and a determination was made that the housekeeping and material conditions did not meet the expectations and standards of plant Hatch, but no items were identified that were detrimental to the proper operation of switchyard equipment.

- An evaluation of overdue PMs indicated that they were not applicable to Plant Hatch. PMs (performed every eight years), which are applicable to Hatch, were current.

- The following long-term process was developed to avoid future concerns:

  Southern Transmission Maintenance Center (STMC) will ensure that adequate housekeeping standards are maintained in the switchyard.

  Dispatchers in central scheduling will function as the primary contact for planning and performing switchyard maintenance.

  STMC and central scheduling agreed that the policy and practice will be that there will be no overdue PMs. Those that are currently overdue will be completed by the end of the year.

  STMC will prepare a yearly schedule of planned PMs for central scheduling to review and approve.

The inspectors performed a tour of the switchyards and the switchyard control house on October 2. The inspectors questioned central scheduling personnel about untaped spare electrical leads observed in the switchyard control house. These electrical leads were identified in the IFI. The inspectors were informed by central scheduling and STMC personnel that it was a common practice of the switchyard maintenance crew, state wide, to leave the ends of the electrical leads pointing straight up and untaped. Housekeeping and material conditions were good.

Based upon the inspectors' review of licensee actions, this item is closed.

M8.4 (Closed) IFI 50-321, 366/97-07-01: Review of Licensee's Assessment of the ALARA Process for the Unit 2 Reactor Coolant Leak Repair on the RWCU Heat Exchanger. This item was identified due to a significant difference between the ALARA staff's estimated dose of (15 person-rem) and the actual dose (28.33 person-rem) received during the leak repair activities. The licensee conducted a review of the activities and identified that the type of welding process and the amount of welding contributed to the dose received. Inspection report 50-321, 366/97-07 identified other work coordination and communication deficiencies that also contributed to the increased dose. The licensee's review did not identify any significant new information. The inspectors concluded that the initial ALARA assessment, the followup ALARA review, and the ALARA review methodology were satisfactory. Based upon the inspectors' review of licensee actions, this item is closed.

III. Engineering

E1 Conduct of Engineering (37551)

On-site engineering activities were reviewed to determine their effectiveness in preventing, identifying, and resolving safety issues, events, and problems.

E1.1 Review of Units 1 and 2 Inadequate Cable Separation Issues (37551) (92903)

The inspectors continued to monitor the licensee's progress and work activities associated with the cable separation issue. This issue was originally documented as IFI 50-321, 366/97-03-05 and was discussed in Inspection Report 50-321, 366/97-07. The inspectors have concluded that the licensee is making progress in resolving the issue.

E4 Engineering Staff Knowledge and Performance

E4.1 Pre-Outage Fuel Inspection and Preparation

a. Inspection Scope (60705)

The inspectors reviewed procedure 42FH-ERP-012-0S, "New Fuel and New Channel Handling," Rev. 7, and observed licensee activities for new fuel receipt, inspection, and storage.

b. Observations and Findings

The inspectors observed that new fuel received on site was temporarily stored at a location near the intake structure. The area was properly identified and controlled as a radioactive materials area. The inspectors observed the shipping crate unloading, crate disassembly, and HP survey of the new fuel. Reactor engineering personnel were present and provided oversight and direction of the activity. Inventory sheets for accountability and tracking of the new fuel were completed. Security personnel provided satisfactory security oversight.

The inspectors observed new fuel inspection and channeling activities from the Unit 1 refueling floor. New fuel channels were installed and the fuel was moved to the spent fuel pool for storage.

c. Conclusions

The inspectors concluded that new fuel receipt, inspection, and storage were completed with appropriate oversight and control, and in accordance with applicable plant procedures. Engineering, HP, and security personnel support for the activity was satisfactory.

E8 Miscellaneous Engineering Issues (92903)

E8.1 (Closed) IFI 50-321/96-14-05: Restoration of 1B EDG Motor Control Center (MCC). This item was initiated following the implementation of temporary modification (TM) 1-96-41. This TM was implemented because the Unit 1 supply breaker in the 1B EDG MCC 1R24-S026 did not coordinate properly with its downstream load breakers. This was an operability concern for the MCC and the 1B EDG during events requiring alignment of the 1B EDG to Unit 1. A fault at any of the non-safety related loads supplied from MCC 1B had the potential to cause the breaker to trip, thus leaving the safety-related loads supplied by MCC 1B inoperable. The TM resolved the immediate operability concern by moving the non-safety related loads to another bus.

As a permanent resolution, the licensee implemented design change request (DCR) 1-96-055. The DCR modified safety-related EDG building 600/208-volt MCC 1B 1R24-S024 to eliminate possible non-coordination between safety-related supply breakers and downstream non-safety related loads for certain postulated faults.

Based upon the inspectors' review of DCR 1-96-055, licensee's actions, and discussions with the system engineer, this item is closed.

IV Plant Support

R1 Radiological Protection and Chemistry Controls

R1.1 Observation of Routine Radiological Controls

a. Inspection Scope (71750)

General Health Physics (HP) activities were observed during the report period. This included locked high radiation area doors, proper radiological posting, and personnel frisking upon exiting the Radiologically Controlled Area (RCA). The inspectors made frequent tours of the RCA and discussed radiological controls with HP technicians and HP management. Minor deficiencies were discussed with HP technicians and HP management personnel.

R1.2 Person Exits Plant Site After Receiving Alarm on the Exit Portal Monitor Wearing Potentially Contaminated Clothing

a. Inspection Scope (71750)(92904)

On September 29, 1997, a contract HP technician left the plant site after receiving an alarm on the exit portal monitor. This was contrary to HP practices and plant procedures. The inspectors reviewed documentation provided by HP personnel and plant procedures, and discussed the issue with licensee management.

b. Observations and Findings

On September 29, the inspectors were informed by HP supervision that a contractor HP technician exited the Plant Entry Security Building (PESB) on September 26 after receiving an alarm on the portal monitor. This portal monitor is located at the exit of the PESB and is the final monitoring point for contamination prior to leaving the protective area.

The licensee informed the inspectors that upon initial exit through the portal monitor the individual received an alarm. Since there was a HP technician monitoring personnel leaving the area, to assure that the people used the exit portal monitor properly, the individual was monitored using a PM 6 radiation detector. This monitor also alarmed. The individual was instructed to report to the HP office for assistance in determining why the contamination alarms were sounding. After about 10-minutes, he returned to the PESB and attempted to exit again. This time he again received an alarm from the monitor and was told by the HP technician that he could not leave the site. The individual ignored alarm and the instructions of the HP technician, exited the PESB, and left the site.

The inspectors reviewed a written statement provided by the HP foreman who spoke with the individual upon his return to the HP office. The statement indicated that the HP foreman did not recall many of the details of the conversation he had with the individual, but did recall that the individual appeared unhappy about not being allowed to exit from the PESB. The individual did not agree with the reasons provided by the HP assigned at the exit point in the PESB for not allowing him to leave. The HP foreman also indicated in the written statement that he is certain that he would not have given the individual authorization to ignore an alarming portal monitor.

In followup actions by the licensee, HP supervision called site security and requested that access to the protective area be denied to the individual upon his return. The individual returned to the site the following morning (September 27) and was met at the entrance to the PESB by his contract supervisor and two HP foremen. The individual was instructed by HP supervision to take the weekend off and report back to work on Monday morning for a discussion of the issue with HP supervision. The individual objected to returning the following Monday morning for a discussion and indicated that he resigned.

The individual was then escorted to dosimetry by his contract supervisor for a whole body count. The results of the whole body count were normal and the individual was escorted to the exit of the PESB.

The HP survey taken when the individual initially attempted to exit the site indicated a reading of approximately 8500 disintegrations per minute (dpm) on one of the individual's knees. The portal monitor was set to alarm at 5000 dpm.

The inspectors were informed by HP personnel that four different scenarios were run using computer modeling to determine a hypothetical dose which the individual would have received. Each scenario was based upon conservative assumptions and assumed a point source of radiation and a 4-hour exposure to the radiation.

Two of the scenarios constituted a set that assumed that the contamination was due to the decay of noble gases such as krypton, xenon, and iodine. One of these scenarios assumed that the 8500 dpm obtained from the HP survey was contamination on the pant leg with an air gap to the skin. The dose resulting from this scenario was 6 milli-rem (mrem) to the skin. The other scenario in this set assumed that the contamination was on the skin, resulting in a dose of 79 mrem to the skin.

The remaining scenarios assumed that the 8500 dpm contamination was from a hot particle that resulted from activated corrosion products. A 1-mrem dose was received when it was assumed that the contamination was on the pant leg with an air gap and 28 mrem resulted when it was assumed that the contamination was on the skin.

The results of the above computer modeling was provided by Plant Hatch's HP personnel to the company's corporate office. The corporate office provided the information to the states of Georgia and Alabama. Based upon the results of the computer modeling, the states decided not to pursue the issue.

The inspectors were informed by Nuclear Safety and Compliance management that the company will continue to pursue the matter because the contaminated clothing was not recovered for frisking. The inspectors were later informed that telephone contact was later made that the individual was reluctant to discuss the issue. The licensee also indicated that there is a high probability that the contamination was due to short-lived decay products, but that there was a concern that it may be due to a hot particle.

The inspectors reviewed Administrative Control Procedure 60AC-HPX-012-0S, "Overview of Radiological Work Practices and Radiation Protection ACPS," Revision 4, and observed that all procedure requirements were not met. The cause of the contamination alarm should have been determined and appropriate corrective actions taken before the individual left the site.

c. Conclusions

The inspectors concluded that the contract HP technician who left the plant site after receiving an alarm on the exit portal monitor presented minimal safety significance to the individual or public. The actions taken by the licensee were appropriate and no further NRC actions are planned based upon the fact that the individual is no longer employed at the site and site access was immediately terminated.

R1.3 Pre-Outage Radiological Protection Activities

a. Inspection Scope (60705) (71750)

The inspectors observed licensee HP activities in preparation for the upcoming Unit 1 refueling outage.

b. Observations and Findings

The inspectors observed that HP management initiated several actions to strengthen the HP area. Meetings were held with all Hatch personnel to communicate management's expectations for HP activities. The meetings included discussions on procedural requirements, required actions for unexpected conditions, and recent changes for radiological work permit (RWP) requirements. Health Physics department management issued "Rad Bulletins" to remind all plant personnel of the renewed emphasis for HP improvements. The Bulletins communicated new RWP requirements, a special emphasis to eliminate personnel contaminations, and to improve contamination controls and overall radiation worker practices. The Bulletins were made available to all site personnel. A new listing of radworker expectations was developed and conspicuously posted in various areas of the plant. HP management developed a checklist for good rad practices. The checklist was used as a quick reference and feedback tool by various managers, supervisors, and coworkers during plant tours and peer checks.

The General Manager conducted a period of stop work and assembled all available personnel in order to communicate his expectations for improved HP practices. A resident inspector attended the meeting and observed that several key items were discussed. A video tape was made available for site personnel who were not able to attend the stop work meeting.

During the last refueling outage, and for the upcoming Unit 1 refueling outage, the HP department conducted tours of the site for new contractor personnel. The inspectors observed one site tour for new contractors. The tour included discussions for site-specific frisking techniques, egress points, and routine posting and boundaries. The licensee completed approximately 25 tours for about 150 personnel and additional tours were planned.

The inspectors attended several HP shift briefings and observed some improvements in communications, specific job assignments, and overall HP staff work practices. The inspectors observed pre-staging activities for Unit 1 refueling activities and observed that radiological and contamination control boundaries were correctly established. The inspectors observed that HP personnel routinely toured the site to assist other workers. The inspectors observed some minor deficiencies that were attributed to individual worker poor work practices. This included some anti-contamination clothing that was not properly placed in the disposal containers. Other items were laying across the contamination control boundary markers. These deficiencies were brought to the attention to HP personnel for resolution.

c. Conclusions

The inspectors concluded that management personnel had placed special emphasis for improved HP and general rad worker activities. The stop work meeting, plant tours for new contractors, and radworker expectations list were identified as a strength.

P4 Staff Knowledge and Performance in EP

P4.1 Annual Emergency Preparedness (EP) Exercise

a. Inspection Scope (82301)

The inspectors reviewed procedures 73EP-EIP-063-0S, "Technical Support Center Activation," Rev. 6, 73EP-EIP-001-0S, "Emergency Classification and Initial Actions," Rev. 12, and the Hatch Emergency Plan for Unit 1 and Unit 2, and observed licensee actions during the annual exercise. Federal, state and county officials participated in the annual exercise.

b. Observations and Findings

On August 20, 1997, the inspectors participated in the licensee's annual EP exercise. One inspector observed overall activities and monitored licensee performance. The inspectors observed operator performance in the plant simulator, technical support center (TSC), operations support center (OSC) and emergency operation facility (EOF). The inspectors concluded that operator performance in the simulator was excellent. Operators correctly classified the events in accordance with procedure 73EP-EIP-001-0S. The inspectors observed that event classification problems identified in past exercises had been corrected. This was demonstrated by actual event classification and observed in training and during this and previous exercises.

The inspectors noted that the TSC was activated in accordance with procedure 73EP-EIP-063-0S. The inspectors verified that minimum manning, communication links, and TSC habitability were established. The inspectors observed that analysis of plant conditions and corrective actions were correct and appropriate. Interactions with offsite agencies were appropriate and timely.

The inspectors noted that several people assigned to key TSC positions were alternates. The inspectors confirmed that the alternate personnel were qualified to perform their assigned positions.

The inspectors verified that the areas identified for improvement during previous exercises were addressed and had improved in all areas. The inspectors did not identify any significant deficiencies with performance in the TSC.

The inspectors observed that control of the activities in the OSC had improved over the last several exercises. Control, noise level, and individual attention were areas on which the licensee had placed increased emphasis during this and other recent exercises. OSC performance during this exercise was excellent.

The inspectors attended the post-exercise critique and observed that the licensee was very self-critical. Open and frank discussions were held with respect to individual and overall site exercise performance. Areas for improvement were identified as well as aspects of the exercise that were considered strengths. The inspectors identified the post-exercise critique process as a strength.

Following a detailed review and assessment of overall performance, the licensee determined that all exercise objectives were met. The inspectors did not identify any significant deficiencies.

c. Conclusions

Overall performance during the annual exercise conducted on August 20, 1997, was good. Event classifications during the exercise were correct. Operator performance in the simulator and overall performance in the operations support center were excellent.

S2 Status of Security Facilities and Equipment (71750)

The inspectors toured the protected area and observed that the perimeter fence was intact and not compromised by erosion nor disrepair. The fence fabric was secured and barbed wire was angled as required by the licensee's Plant Security Program (PSP). Isolation zones were maintained on both sides of the barrier and were free of objects which could shield or conceal an individual. The inspectors observed that personnel and packages entering the protected area were searched either by special purpose detectors or by a physical patdown for firearms, explosives, and contraband. Badge issuance was observed, as was the processing and escorting of visitors. Vehicles were searched, escorted, and secured as described in applicable procedures.

The inspectors observed on the morning of August 21 that the elevated lights at the front of the PESB were not lit. This resulted in reduced visibility in the area leading to the entry to

the protected area. The inspectors observed upon entry into the protected area that a compensatory post was established to provide a visual observation of the area leading to the entrance of the PESB.

The inspectors concluded that the areas of security inspected met the applicable requirements.

V. Management Meetings

X.2 Review of UFSAR Commitments

A recent discovery of a licensee operating its facility in a manner contrary to the Updated Final Safety Analysis Report (UFSAR) description highlighted the need for a special focused review that compares plant practices, procedures and/or parameters to the UFSAR description. While performing the inspections discussed in this report, the inspectors reviewed the applicable portions of the UFSAR that related to the areas inspected. The inspectors verified that the UFSAR wording was consistent with the observed plant practices, procedures, and/or parameters, except as noted above in Paragraph M3.3. Table 3.2-1 of the Unit 2 UFSAR lists the TIP piping as ASME Code Section III, Class 2. This included the flange, TIP tubing and tubing valves. All TIP flanges, TIP tubing and tubing valves do not meet the ASME Code Section III, Class 2 requirement. The licensee is evaluating a change to table 3.2-1 of the UFSAR for submittal.

X.3 Exit Meeting Summary

The inspectors presented the inspection results to members of the licensee management at the conclusion of the inspection on October 16, 1997. 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.

PARTIAL LIST OF PERSONS CONTACTED

Licensee

Anderson, J., Unit Superintendent
Betsill, J., Assistant General Manager - Operations
Breitenbach, C., Engineering Support Manager - Acting
Curtis, S., Unit Superintendent
Davis, D., Plant Administration Manager
Fornel, P., Performance Team Manager
Fraser, O., Safety Audit and Engineering Review Supervisor
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
Reddick, R., Site Emergency Preparedness Coordinator
Roberts, P., Outages 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 60705: Preparations for Refueling
IP 61726: Surveillance Observations
IP 62707: Maintenance Observations
IP 71707: Plant Operations
IP 71750: Plant Support Activities
IP 82301: Evaluation Of Exercises For Power Reactors
IP 92700: Onsite Follow-up of Written Reports of Nonroutine Events at Power Reactor Facilities
IP 92901: Followup - Operations
IP 92902: Followup - Maintenance/Surveillance
IP 92903: Followup - Followup Engineering
IP 92904: Followup - Plant Support

ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

50-321, 366/97-09-01	VIO	Failure to Follow Procedures - Multiple Examples (Sections O4.2, O8.2, and M3.2).

Closed

50-321, 366/96-13-04	IFI	Inability to Correctly Classify Events (Section O8.1).
50-366/97-08	LER	Main Pump Journal Bearing Damage Renders HPCI System Inoperable (Section M8.1).
50-321, 366/96-14-02	IFI	Potential Single Failure Vulnerability in the Freeze Protection System (Section M8.2).

50-321, 366/97-07-01	IFI	Review of Licensee's Assessment of the A&LARA Process for the Unit 2 Reactor Coolant Leak Repair on the RWCU Heat Exchanger (Section M8.4).
50-321/96-14-05	IFI	Restoration of 1B EDG Motor Control Center (MCC) (Section E8.1).
50-321/96-15-04	IFI	Switchyard Maintenance and Material Condition (Section M8.3).
50-366/97-09	LER	Removal of DG Battery Chargers From Service Results in Inoperability of Both the 2A and 2C DG DC Electrical Power Subsystems (Section O8.2).

Discussed

50-321, 366/97-03-05	IFI	Review of 4160-VAC Wiring Separation Deficiencies (Section E1.1).