UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30323

Report Nos.: 50-321/93-03 and 50-366/93-03

Licensee: Georgia Power Company
P.O. Box 1295
Birmingham, AL 35201

Docket No.: 50-321 and 50-366 License Nos.: DPR-57 and NPF-5

Facility Name: Hatch Nuclear Plant

Inspection Conducted: February 7, 1993 - March 13, 1993

Inspectors: for Leonard D. Wert, Jr., Sr. Resident Inspector — Date Signed: 3.31.93

for Edward F. Christnot, Resident Inspector — Date Signed: 3.31.93

Accompanying Inspector: Bobby Holbrook

Approved by: Pierce H. Skinner, Chief, Project Section 3B — Date Signed: 4/1/93
Division of Reactor Projects

SUMMARY

Scope: This routine, announced inspection involved inspection on-site in the areas of: operations, surveillance testing activities, maintenance activities, Engineered Safety Feature system walkdown, engineering and technical support issues, licensee self-assessment activities, and review of open items.

Results: One unresolved item (URI) and two non-cited violations (NCV) were identified:

The unresolved item addressed deficiencies involving a control room recorder for the Unit 2 reactor building ventilation stack flowrate. Questioning by the inspectors led to the identification that the recorder had not been operating properly. Failure to follow the requirements in one procedure and inadequacies in other procedures contributed to the incident. Additional information is needed to assess the significance of the issue. (Unresolved Item 366/93-03-01: Failure to Identify Inaccurate RB Stack Flowrate Recorder Indications, paragraph 3b)

The first non-cited violation involved a licensee identified improper maintenance activity. Wooden wedges on supports for a control room air conditioning component had been replaced with welded wedges. The seismic qualification of the involved equipment was adversely affected. (NCV 321/93-03-02: Inappropriate Installations of welded Wedges in the MCREC System, paragraph 6b)

The second non-cited violation addressed a licensee identified single failure vulnerability involving a loss of feedwater heating which had not been previously analyzed. The failure of a specific power supply (balance of plant equipment) could have resulted in some fuel design limits being exceeded. The licensee identified, analyzed, and corrected the problem. A voluntary LER was submitted on the issue. (NCV 366/93-03-03: Loss of Feedwater Heating Single Failure Vulnerability Results in Operation in an Unanalyzed Condition, paragraph 7)

The inspectors identified that significant changes have been implemented involving shutdown risk assessment during shutdown outage. An outage safety assessment is completed and reviewed each shift. The results are prominently posted in the control room and outage management work office. The inspectors have previously noted the licensee's overall outage risk management to be conservative, and these efforts are resulting in even more emphasis on a daily basis. (paragraph 2a)

A concern was identified involving a period of HPCI inoperability for maintenance activities during Unit 1 operation at full power. The inspectors concluded that all attributes of Generic Letter 91-18 were not adequately considered prior to performing all maintenance activities. (paragraph 4b)

Two examples of good communications between the licensee and the resident inspectors office were noted. The licensee promptly informed the inspectors of potential problems involving water intrusion into the main stack mixing chamber. The issue was identified by the system engineer's investigation. Frequent updates and appropriate responses to the inspector's questions were provided. The situation was expeditiously resolved and the consequences thoroughly reviewed (paragraph 6a). The second example involved the licensee's plans to use a temporary fuel pool cooling system during the upcoming Unit 1 outage. The inspectors were briefed on the plans by knowledgeable personnel. Areas of potential concerns as well as overall system operation were discussed. (paragraph 6c)

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*J. Betsill, Unit 2 Operations Superintendent
*C. Coggin, Training and Emergency Preparedness Manager
*D. Davis, Plant Administration Manager
*P. Fornel, Maintenance Manager
*O. Fraser, Safety Audit and Engineering Review Supervisor
*G. Goode, Engineering Support Manager
J. Hammonds, Regulatory Compliance Supervisor
*W. Kirkley, Health Physics and Chemistry Manager
*J. Lewis, Operations Manager
*C. Moore, Assistant General Manager - Plant Operations
D. Read, Assistant General Manager - Plant Support
*P. Roberts, Acting Outages and Planning Manager
*K. Robuck, Manager, Modifications and Maintenance Support
*H. Sumner, General Manager - Nuclear Plant
J. Thompson, Nuclear Security Manager
*S. Tipps, Nuclear Safety and Compliance Manager
*P. Wells, Unit 1 Operations Superintendent

Other licensee employees contacted included technicians, operators, mechanics, security force members and staff personnel.

NRC Resident Inspectors

*L. Wert
*E. Christnot
*B. Holbrook

* Attended exit interview

Acronyms and abbreviations used throughout this report are listed in the last paragraph.

2. Plant Operations (71707)

a. Operational Status

Unit 1 operated at full rated power for most of the report period. On March 9, the unit commenced coastdown operation. At the end of this report period the unit was at approximately 96 percent power and 104 percent flow with the cycle 14 refueling outage scheduled to start March 17.

Unit 2 operated at full power until 9:05 a.m. EST, March 3, 1993. An unscheduled shutdown was initiated on March 3 due to increasing radioactivity levels caused by leaking fuel assemblies. Although

the levels were still below regulatory limits, they had been steadily increasing since March 1. The unit reached cold shutdown on March 6, and vessel disassembly and fuel handling activities were initiated. At the close of the report interval, the licensee was in the process of sipping each assembly and performing a detailed visual inspection of most of the bundles which had been in the core for previous cycles. On March 10, a small piece of debris and indications of a hydrided crack were identified on a pin in one of the suspect assemblies. The bundle was a high powered assembly which had been in the core for one cycle. Several other pieces of debris were found. In September 1992, during a refueling outage, several pieces of debris had been found in fuel assemblies. At least two failures of fuel pins were attributed to fretting effects of the debris. An ERT investigation into the event concluded that the material most probably originated from maintenance activities involving the recirculation system. Indications are that the debris which has been identified during the latest inspections is from the previous incident. No debris has been confirmed in "first cycle" fuel.

The inspectors reviewed plant operations throughout the reporting period to verify conformance with regulatory requirements, TSs, and administrative controls. CR logs, shift turnover records, temporary modification logs, LCO logs and equipment clearance records were reviewed routinely. The inspectors also periodically monitored activities on the refueling floor associated with the movement of irradiated fuel and preparations for installation of a supplemental (temporary) fuel pool cooling system. Discussions were conducted with plant operations, maintenance, chemistry, health physics, I&C, and NSAC personnel.

Activities within the CRs were monitored on an almost daily basis. Inspections were conducted on day and on night shifts, during weekdays and on weekends. Observations included CR manning, access control, operator professionalism and attentiveness, and adherence to procedures. Instrument readings, recorder traces, annunciator alarms, operability of nuclear instrumentation and reactor protection system channels, availability of power sources, and operability of the SPDS were monitored. CR observations also included ECCS system lineups, containment integrity, reactor mode switch position, scram discharge volume valve positions, and rod movement controls. During movement of irradiated fuel, the required CR watchstander actions were periodically verified. Numerous informal discussions were conducted with the operators and their supervisors. Some inspections were made during shift change in order to evaluate shift turnover performance. Actions observed were conducted as required by the licensee's administrative procedures. The complement of licensed personnel on each shift met or exceeded the requirements of TS.

During observation of CR activities, the inspectors noted new requirements had been implemented involving shutdown risk

assessment. Procedure DI-OPS-57-0393N: Outage Safety Assessment, was implemented which incorporated NUMARC developed guidelines for shutdown management assessment. Each shift, the outage safety assessment checklist is to be completed by the control board operator and reviewed by the STA and Unit SS. The checklist results in a determination of red, yellow or green "conditions" regarding availability of systems for core/fuel pool cooling, electrical power supplies, secondary containment, and reactivity controls. The conditions are displayed on status boards for each unit in the CR and in the outage management work office. Additionally, recent additions to the procedures for loss of shutdown cooling and loss of fuel pool cooling included boil off information graphs. Although it is too early to assess the effectiveness of these changes, increased attention is being focused on outage risk management on a daily basis as a result of the changes.

Selected portions of the containment isolation lineup were reviewed to confirm that the lineup was correct. The review involved verification of proper valve positioning, verification that motor and air-operated valves were not mechanically blocked and that power was available (unless blocking or power removal was required), and inspection of piping upstream of the valves for leakage or leakage paths. During the movement of irradiated fuel, the inspectors periodically verified the correct positioning of secondary containment isolation equipment. During the ESF walkdown discussed in paragraph 5 of this report, the isolation valves associated with the Unit 1 core spray system were closely examined.

The inspectors completed a security survey directed by NRC management. The survey involved review of the licensee's preparations and procedures for a specific potential security issue. One minor deficiency had been identified by site security management. The inspectors verified that the problem was corrected before the end of this report period.

Plant tours were taken throughout the reporting period on a routine basis. The areas toured included the following:

Reactor Buildings
Station Yard Zone within the Protected Area
Turbine Building
Intake Building
Diesel Generator Building
Fire Pump Building
Central and Secondary Alarm Stations

During the plant tours, ongoing activities, housekeeping, security, equipment status, and radiation control practices were observed. No significant problems were noted. Due to the preparations in progress for the upcoming Unit 1 refueling outage,

the inspectors examined the placement and construction of scaffolding in the safety related areas of the plant. No discrepancies were noted. Some minor housekeeping discrepancies were noted during the walkdown of Unit 1 CS system. These are discussed in paragraph 5 of this report.

On February 17, 1993, the inspectors participated in a practice emergency preparedness drill. The drill was initiated by a simulated fire in the HPCI oil system and progressed to a general emergency. One of the inspectors participated in the simulator CR and the other inspector served in the TSC and EOF. Due to recent concerns about portable radio communications (IFI 321/92-34-03: Onsite Radio communications Problems), portions of the fire drill were also observed. The inspector noted that the fire brigade leader was able to easily contact both the simulator CR and the actual plant CR with a fire brigade radio at the scene.

The drill included participation by several state and local emergency preparedness officials. Additionally, the licensee had previously arranged for a group of emergency preparedness representatives from other utilities to simulate arrival and participation as NRC officials. The resident inspectors, along with a regional emergency preparedness official, assisted in the development of the simulated NRC participation. During the scenario, the residents performed the roles they would fulfill in an actual emergency and worked with the simulated NRC personnel upon their arrival in the TSC and EOF. The addition of the simulated NRC personnel created some challenges to TSC and EOF management and enhanced the realism and training value of the drill. Some changes to emergency facility arrangements are being considered as a result of information gained during the drill.

On February 18, 1993, the inspectors observed a portion of a routine meeting between Hatch emergency preparedness personnel and the local emergency directors. Three of the four counties within the 10 mile emergency planning zone had directors present. The inspectors toured the Appling County Emergency Operations Center and talked briefly with the directors.

No violations or deviations were identified.

3. Surveillance Testing (61726) (61701)

a. Surveillance tests were reviewed by the inspectors to verify procedural and performance adequacy. The completed tests reviewed were examined for necessary test prerequisites, instructions, acceptance criteria, technical content, authorization to begin work, data collection, independent verification where required, handling of deficiencies noted, and review of completed work. The tests witnessed, in whole or in part, were inspected to determine that approved procedures were available, test equipment was calibrated, prerequisites were met, tests were

conducted according to procedure, test results were acceptable and systems restoration was completed.

The following surveillances were reviewed and witnessed in whole or in part:

1. 57SV-D11-016-1S: MSL Radiation Monitor Functional Test

2. 57SV-C51-003-2S: APRM Calibration

No deficiencies were identified. Surveillance testing related to the RB ventilation stack flowrate indications was reviewed in detail as discussed in the following paragraph.

b. Reactor Building Ventilation Stack Flowrate Recorder Deficiencies

During routine tours of the CR, several discrepancies associated with the Unit 2 RB stack flowrate chart recorder (2T41-R621) were identified. The recorder has two channels which each indicate the flowrate (cfm) in the RB ventilation stack. The inspectors noted that the "A" channel indicated about 100,000 cfm and the "B" channel indicated about 200,000 cfm. The flowrate is used for gaseous effluent releases and for prompt (manual) dose assessment calculations. At least one of the channels is required to be operable by TS Table 3.3.6.10-1. While some variation in the sensed flowrate is expected due to turbulent flow conditions in the RB stack, the inspectors concluded that the 100,000 cfm difference was excessive. CR operators indicated that it was not known which channel was accurate and some were unsure which of the two values would be used for dose assessment. The inspectors discussed their observations and concerns with chemistry management on February 19, 1993.

DC 2-93-0412 was initiated on February 28, 1993 to address the issue. The DC stated that the flowrates indicated by the two channels were greater than 20 percent different in value. On March 3, 1993, the inspectors observed maintenance in progress on the recorder in accordance with MWO 2-93-587. The recorder was restored to proper operation by the replacement of several parts and additional calibration work. The work involved both channels of the recorder. During a review of the completed MWO, the inspector noted that the condition of both recorder channels had been degraded. The "A" channel (red pen) as found data column was marked as "inoperable" and after some parts were replaced, the "B" channel (black pen) had to be adjusted.

On March 4, the inspector noted that the two channels were indicating approximately the same flowrate (about 225,000 cfm). On March 9, the inspectors noted the recorder channels indicated about 225,000 cfm and about 285,000 cfm respectively. The inspectors verified that the local flow indicator/transmitter

units (2T41-N081A,B) indicated values which corresponded fairly closely with the recorder indications. The primary concern of the inspectors in this matter was the apparent failure of personnel to question and pursue resolution of the wide disparity and inaccuracy in the indications.

Additional review was conducted. Step 7.7.9 of Procedure 34SV-SUV-019-2S: Surveillance Checks, requires a channel check of 2T41-R621. This channel check is required by TS Table 4.3.6.10-1 and is performed by CR operators once per 24 hours. TS define a channel check as a qualitative assessment of channel behavior during operations by observation. The procedure also has a note which states that the recorder is to be advancing and inking as indicated by a channel check. The inspector noted that the similar Unit 1 procedure step contains a specific note stating "channel check is not possible on these due to turbulent flow occurring in the flow element due to the design of the RB plenum." The procedure note referenced REA-HT-9071 as justification.

A copy of the response to this REA was provided to the inspector by chemistry supervision. It had apparently been initiated (in 1990) to address repetitive failures to meet a 20 percent procedural limit (chemistry procedure) on the channel difference. The response by SCS stated that turbulence in the system would result in appreciable channel differences and since the 20 percent limit was not required by the TS or FSAR, it should be deleted. The response also stated that use of the higher channel would be conservative.

Chemistry Procedure 62EV-SAM-003-0S: Gaseous Waste Discharge Monitor Checks, contains requirements involving the recorder. Step 7.2.1.3 requires that step 7.1.1.4 be performed for the RB ventilation stack. This step specifically requires that the instrument channels be compared and if not within 20 percent, corrective actions are to be initiated. The inspector noted that these requirements are contained in the body of the procedure and are not referenced on the "Daily Instrument Check" form (Attachment 2 of 62EV-SAM-003-0S). It is likely that technicians do not refer to the body of the procedure to perform routine daily tasks. The inspectors also noted that the form does contain some acceptance criteria for instrument parameters but the channel difference is not included.

The inspectors noted that Section 11.4.2.8.7 of the Unit 2 FSAR states that the design flow rate by the probe in the RB vent stack is 143,000 cfm. The flowrate indicated by the recorder in the CR is consistently a significantly higher value. Chemistry supervision and NSAC management were informed of the apparent discrepancy. Discussions with personnel knowledgeable in the operation of this instrumentation indicated that the rotometers and the instrumentation are accurately displaying the flowrate based on the flow passing by the rotometers. The problem appears

to be that the conditions of flow are so turbulent that the actual stack flow is not accurately reflected by the sensed flow. The inspectors also noted that the semi-annual effluent release report contains a vent flow error figure of ten percent and questioned what this error value is intended to characterize.

The inspectors verified that the chemistry procedures which used the readings directed that the higher value of the two channels was to be used for calculations of releases. The recorded values also indicated that the higher channel reading was used.

In the event that manual dose projections are required, the indications on 2TA1-R621 are to be used in accordance with Attachment 2 of SP-EIP-015-0S: Offsite Dose. The inspectors noted that the procedure does not provide guidance on which of the channels to use. Although some of the CR operators indicated that they were not sure of which channel to use, other operators indicated that routine training directed the use of the higher reading. Guidance to utilize the higher value is not specifically included in formal training documentation. During their review of the dose projection flowchart, the inspectors noted that it directed that 300,000 cfm is to be used if the recorder is offscale. The use of an inaccurate flowrate to calculate dose during an event could result in improper emergency classification and/or exposure control recommendations. The inspectors also noted that if the SPDS was operable, it would be used to obtain dose projections. The flowrate used by SPDS for the dose calculations is 225,000 cfm unless a secondary containment isolation has occurred, then 136,000 cfm is used. The inspectors requested that the use of these values be reviewed.

The inspectors also closely reviewed and discussed with I&C technicians the procedures for functional testing (quarterly) and calibration (every 18 months) on the flowrate indications. The most recently completed (September 1992) channel calibrations were reviewed. No discrepancies were noted.

After some review of this issue had been completed, the inspectors questioned NSAC management regarding how the TS requirements for a channel check of the recorder were being met. The licensee responded that the operations surveillance procedures are used to meet the requirements, and that the note in the Unit 1 procedure was incorrect and would be removed.

The inspectors concluded that the uses of the recorder indications are of such importance that a reasonably accurate value of flowrate is desirable. Since the chemistry department procedures are apparently relied upon to identify a recorder deficiency, it is important that the procedures be followed. The failure to follow procedure resulted in a failure to identify that the recorder indications were inaccurate and the recorder most likely inoperable. Additionally, the inspectors concluded that

inadequacies existed in several procedures as discussed above. The TS required channel checks were effectively not being performed. This issue is identified as URI Item 50-366/93-03-01: Failure to Identify Inaccurate RB Stack Flowrate Recorder Indications. This item is unresolved pending additional information necessary to assess the safety significance and of the issue.

One URI was identified.

4. Maintenance Activities (62703)

a. Maintenance activities were observed and/or reviewed during the reporting period to verify that work was performed by qualified personnel and that approved procedures in use adequately described work that was not within the skill of the trade. Activities, procedures, and work requests were examined to verify; proper authorization to begin work, provisions for fire, cleanliness, and exposure control, proper return of equipment to service, and that limiting conditions for operation were met.

The following maintenance activities were reviewed and witnessed in whole or in part:

1. MWO 1-92-299: Replacement of Flex Hose (HPCI System) to Main Shaft Oil Pump Switch

2. MWO 2-93-587: Repairs to 2T41-R621 (Unit 2 RB stack flowrate) Recorder

3. MWO 1-92-235: Rebuild Fuel Pool Cooling Pump

4. MWO 2-93-236: PSW Pressure Control Valve Repairs

b. HPCI Inoperable for Maintenance Activities (Unit 1)

Unit 1 HPCI system had been removed from service (with Unit 1 at full rated power) for maintenance activities at 5:15 a.m. EST on February 16. It was restored to an operable status at 6:10 a.m. EST on February 17. Testing of the control system, which has been an important factor in the recently increased performance capabilities of the HPCI system, was one of the activities conducted. This activity normally would necessitate the inoperability of HPCI for only a few hours. The inoperability period for this specific period appeared to be lengthened by the performance of 18 month and 36 month preventive maintenance activities on the major HPCI system valves and other control system testing activities. Some of the maintenance observed by the inspectors did not appear to have increased the HPCI system reliability or performance.

The BWR PRA results indicate that HPCI maintenance or testing inoperability periods during power operations should be strictly limited to the practical minimum periods. GL 91-18, Information to Licensees Regarding Two NRC Inspection Manual Sections On Resolution of Degraded and Nonconforming Conditions and on Operability, also addresses voluntary entry into LCOs to perform maintenance. The GL stresses that one consideration for removing operable equipment from service to perform maintenance during power operation is that the result of this action should be expected to improve the reliability such that overall risk to safe operation of the facility should be decreased. The inspectors have observed and reviewed activities during several HPCI maintenance inoperability periods. In those instances, the inspectors have concluded that a reasonable justification for the inoperability period existed. Repairs or other activities which contributed to an increased reliability or performance of HPCI were conducted and the inoperability interval was limited to the minimum required.

For this specific Unit 1 HPCI work activity, the inspectors concluded that all attributes of the GL guidance did not appear to be adequately considered by the licensee.

No violations or deviations were identified.

5. ESF Walkdown (71710) (Unit 1)

The inspectors conducted a walkdown of the Unit 1 CS system. Valve and breaker switch lineups and equipment conditions were verified in the CR and locally to ensure that lineups were in accordance with operability requirements and that equipment material conditions were satisfactory.

The Unit 1 FSAR, TS, SED, and Procedure 34SO-E21-001-1S: Core Spray System, were reviewed and verified in preparation for the inspection. The Core Spray system valve lineup section of the operating procedure was verified to be as delineated in P&ID H-16331.

During the inspection, various piping supports and hangers, instrument valve alignments, freeze protection, and other support systems were verified to be operating properly. The CS pump motor overcurrent relay settings were verified to be set in accordance with the relay data sheet source document.

The inspectors performed a cursory walkdown of the Unit 1 PSW system and the RHR system (pump and heat exchanger area), due to the PSW interface with the CS and RHR room coolers, and the close proximity of the RHR pumps and heat exchangers to the CS system. These systems were properly aligned and no deficiencies were noted.

The inspectors did not identify any safety significant issues that would affect system operability. However, the following minor discrepancies were noted:

- The inspectors observed that the last several feet of electrical conduit to the "B" jockey pump motor was not supported with bracing. Additionally, the electrical connection to the pump motor was very loose. One of two bolts was missing and the second was not securely tightened. The licensee issued an MWO to correct the problem.

- General house keeping conditions and cleanliness were adequate with the exception being some small debris located in the "B" CS and RHR pump area.

- Labeling of breakers, valves and major equipment was appropriate in general. However, four instrument valves (located in sensing lines between the root valve and instrument test valves) associated with the two jockey pumps differential pressure switches were not labeled. The inspectors verified that the valves were controlled and aligned by the I&C department in accordance with procedure. The licensee initiated a tagging request to have the valves properly labeled.

The inspectors observed that jockey pump "B" minimum flow stop check valve was closed (1E21-F044B). The local valve identification tag, the P&ID, and FSAR Table 7.3-1 indicated the valves normal status would be open or throttled. The inspectors determined the valve lineup section of the operating procedure required the valve to be closed and the two jockey pump return lines to be cross connected through valves 1E21-F047A and 1E21-F047B. However, both the SED and the FSAR indicate that each jockey pump has its own a bypass flow line with a restricting orifice to avoid having the pump run to a shut-off head while pressurizing the ECCS discharge lines. Section 7.2.3 of the operating procedure for the startup of the jockey pump allows the startup of either the A or B pump; but does not direct opening of valve 1E21-F044B if jockey pump "B" is to be placed in service to maintain CS and RHR filled. The current lineup relies on jockey pump "A" minimum flow valve for jockey pump "B" minimum flow. During the verification of support systems, the inspectors observed that CS jockey pump, C002B, was tagged with a repair tag. The jockey pump differential pressure, inlet pressure (pump stopped) compared with inlet pressure (pump running), was not within the acceptable range of Surveillance Procedure 34SV-E21-003-1S. Also, the pump vibration was not within the acceptable range of the surveillance procedure. These deficiencies were recorded on MWO 1-92-3563, dated July 29, 1992, and MWO 1-92-4099, dated September 8, 1992.

The inspectors discussed these items with the licensee. The labeling and other minor problems were addressed. Operations management stated the current jockey pump return line valve alignment was considered to be satisfactory. Action has been initiated to address the labeling and drawing deficiencies associated with that issue. Some Operations personnel also stated that with the F044B valve open, the "B" jockey pump operating performance appeared to be significantly improved. The present lineup (1E21-F044B closed) was apparently the resolution of previous problems with the jockey pump system. Jockey pump C002A is

currently in operation and maintaining the system full. The Condensate Transfer System was also available to maintain CS and RHR systems full.

No violations or deviations were identified.

6. Engineering and Technical Support Issues (37828) (37001)

a. Water Intrusion Into Main Stack Mixing Chamber

During investigation by the system engineering group into repetitive failures of the stack flow monitors, it was identified that significant amounts of water had leaked into the mixing chamber. Technicians had also raised questions about noises heard in the stack area during work activities. The mixing chamber is a large volume located at the base of the stack into which various systems discharge. Mixing with the dilution air flow occurs in the chamber as well. A system engineer inserted a video camera into the stack from an accessible opening located at the 165 feet elevation (about 67 feet above ground level), and discovered water in the mixing chamber. Additional investigation by the system engineer indicated that the mixing chamber was flooded with approximately 8 feet of water. On January 28, 1993, the plant maintenance personnel removed the shield plugs in the base of the stack in order to facilitate the investigation. This allowed access to the exterior of the mixing chamber. There appeared to be water leaking out of the chamber through a SBGT system inlet penetration. Further investigation indicated that debris was present in the bottom of the chamber and may have blocked the chamber drain. Additionally, it was noted that the inside of the chamber was not metal lined as was originally thought.

Licensee personnel held several discussions with the inspectors on the issue. Included in the major topics were: the effects of the water level on the performance of the SBGT and offgas systems, potential sources of the water, drainage paths, and the potential effects of any stack bypass flow. The inspectors reviewed drawings of the stack system and observed the equipment layout of the ground level and the 145' elevation of the stack. The inspectors also reviewed the video tapes made of the interior of the chamber. It was noted there was a significant difference in appearance between the Unit 1 SBGT penetration and the Unit 2 penetrations. Discussion with licensee personnel indicated that the Unit 2 penetrations may not have been installed in accordance with the original design.

Additional discussions were held with various licensee personnel such as operations, health physics, and engineering concerning corrective actions and the potential safety significance of the gaseous discharge from the chamber at ground level (through the leak). The inspectors continued to monitor the licensee's

activities in this area and reviewed the licensee's overall action plan to address this item. A special team, lead by the system engineer, was designated to address the issue and the resulting concerns. These included SBGT system operability questions, other possible TS issues such as long term stack monitoring, identification of the source of the water, permanent repairs to preclude future drain blockage, and acceptable repairs to the defective penetrations. The team identified a total of 10 action items, designated specific responsibilities, and published a schedule for completed the various action items.

The source of the water intrusion was attributed to the steam packing exhauster lines from both units. Sampling of the chamber drain line contents confirmed that it was not rain or ground water. This water had accumulated in the chamber due to the blocked drain line, filled the chamber to the level of the leaking penetration, and leaked out the penetration. The penetration (Unit 2 SBGT) had not been properly installed or sealed when it was added to the mixing chamber. The noise heard by technicians working in the stack area was most probably the dilution fans discharge flow gurgling up through the water. The water level did not reach high enough to block the SBGT or offgas lines. The inspectors observations of the videotapes supported these conclusions. Soon after the penetration leak was sealed, the gaseous activity levels in the base section of the stack decreased. The flowrate from the leaking chamber penetration was measured so that an analysis of the potential effects of ground level leakage could be performed. The inspectors reviewed the assessment performed by the A/E. The assessment addressed seismic concerns as well as the dose limits concerns involved with the leaking penetration. The assessment concluded that neither a seismic nor a dose limit problem existed. The assessment included the effects of an accident ground level release path created by the leaking penetration.

At the close of this reporting period, the licensee was continuing to develop corrective actions. Due to the unexpected shutdown of Unit 2, it is expected that for at least a few days, both Hatch units will be shutdown. This may provide an opportunity to enter the chamber and perform extensive repair activities. The penetration is probably repairable from the exterior of the chamber. The licensee is developing measures to minimize the potential of drain line blockage in the future, implement permanent repairs from both the inside and outside the chamber, and install an alternate drain for the chamber.

The inspectors concluded from their reviews of this issue that no regulatory requirements were violated. The system engineering group vigorously pursued this problem from initial investigation to analysis of the potential effects and development of permanent repairs. Throughout the process, the licensee ensured the inspectors were informed and responded to their questions and

concerns. Corrective actions were being aggressively pursued. The inspectors will continue to monitor the licensee's activities in this area.

b. Installation of Wedges on MCREC Air Conditioning System.

On February 10, 1993, the licensee initiated LCO 1-93-109, on the main CR air conditioning system due to the installation of welded wedges. Additional reviews, discussions with licensee personnel, and observations by the inspector indicated that the train 3, 1Z41-B008C/C003C, air conditioner had been experiencing a high vibration problem. Wooden wedges were initially installed to determine if the vibration could be dampened. An engineering review was requested and based on this review the wooden wedges were replaced with welded metal wedges. These activities were later reviewed by the corporate design group, who in conjunction with the A/E, directed that the welded metal wedges be removed. The welded metal wedges were removed and LCO 1-93-109 was terminated on February 11, 1993.

The inspector walked down the top of control building area where the air conditioning chillers ventilation fan motors, air handing units, and air filters were located. It was noted that several exhaust fans, chillers and supply fans were spring mounted. Any use of metal wedges on these mountings would tend to change the original configuration of these components. The inspector was informed by the licensee's engineering management that the removal of the welded metal wedges had been directed due to the possible effect on the qualification of the original installation. The inspector concluded from the observations, review and discussions with licensee technical personnel that these activities did not meet the requirements of Procedure 40AC-ENG-003-0S: Design Control. Section 8.2.1 of this procedure, Plant Operations and Maintenance Activities, requires surveillance, inspection, and preventive and corrective maintenance activities be conducted such that equipment, systems and structures retain their installed design, form, fit, function, and qualification. This violation will not be subject to enforcement action, because the licensee's efforts in correcting the violation meet the criteria specified in section VII.B of the Enforcement Policy. This item is identified as NCV 321/93-03-02: Inappropriate Installation of Welded Metal Wedges in the MCREC system.

c. Temporary Fuel Pool Cooling System

The inspectors periodically observed and reviewed the activities associated with DCR 93-01. This design change involved the installation of a temporary spent fuel pool cooling system. The specific activities observed included the core boring of penetration holes through the Unit 1 reactor building east wall and other preparations for system setup. Metal cofferdams were used to maintain secondary containment during the installation of

the penetrations. The licensee's technical personnel thoroughly briefed the inspectors prior to initiation of the field activities. Areas of potential concern and details of the planned configuration were discussed in detail. The effects of this temporary cooling system on the other outage activities was discussed. The inspectors did not identify any significant issues which the licensee's planning efforts had not considered. No significant deficiencies were noted during observation of the installation activities. This is an example of good communications between the licensee and the inspectors regarding an activity which will fulfill a role important to safety during portions of the outage.

One NCV was identified.

7. Self Assessment (40500) (92700)

The inspector reviewed approximately 50 DCs involving equipment problems identified by plant personnel. The deficiency cards were filled out by the individuals identifying the deficiency and submitted to the CR personnel. An initial review of the items significance was performed by the individual identifying the deficiency. CR personnel perform a second review and indicate whether the issue is not significant or potentially significant. The cards are forwarded to the NSAC group for additional review and a final determination of the items significance. The inspector noted the following:

- The reviewers tended to be conservation in designating items as being significant. All cards that indicated refueling equipment problems were checked as being potentially significant.

- Hatch recently instituted a repair tag program which requires the placement of a repair tag on deficient equipment and recording the RT number on the DC. Several cards did not list the RT number.

These observations were discussed with licensee personnel. The inspector concluded from these reviews that the licensee's deficiency identification and resolution program was being implemented in accordance with procedure.

The inspectors also reviewed an item identified by the licensee in LER 366/92-13, which discussed a potential single failure vulnerability in the Unit 2 feedwater heater system electrical power supply. The LER identified that a conservative analysis performed for the loss of this power supply indicated that local power level in the limiting fuel node could exceed design parameters, however no TS safety limits would have been exceeded. The LER indicated that this was being reported as a voluntary report. During their review, the inspectors received the assistance of a Region II inspector in their efforts to assess the significance of this issue. The inspectors were concerned that some fuel TS limits would have been exceeded and noted that the Unit 2 reactor had been operated previously in an unanalyzed condition since

the significance of this failure was not appropriately taken into consideration during initial design. The inspectors also questioned licensee personnel as to their conclusion that this event was not reportable. Comments made by licensee personnel indicated that because a safety limit would not have been exceeded, they concluded that the condition did not significantly compromise plant safety and thus it was not required to be reported.

On March 17, 1993, a conference call was held between the NRC and the licensee. Additional details of the fuel limits and the analysis performed were reviewed. With the additional details the inspectors were able to more accurately characterize the safety significance of the issue.

Criterion III of 10 CFR 50 Appendix B requires that design controls ensure that the applicable regulatory requirements and the design basis (for those structures, systems, and components to which this appendix applies) are correctly translated into specifications, drawings, procedures, and instructions. While the specific single failure involved in this case did not include safety related equipment, the consequences of the failure were such that an assumption used in safety related analyses would have been exceeded. The analyses are relied upon to ensure operation within regulatory limits. An operating limit contained in the Cycle 10 COLR (MAPLHGR power factor) had to be revised as a result of this issue. The analysis of this event indicated that if this condition had occurred at some power levels less than 100%, fuel design limits specified by GE would have been exceeded. TS 6.9.1.11.c states that the Core Operating Limits Report shall be determined so that all applicable limits (e.g., fuel thermal-mechanical limits, core thermal-hydraulic limits, ECCS limits, nuclear limits such as shutdown margin, and transient and accident analysis limits) of the safety analysis are met.

This violation will not be subject to enforcement action, because the licensee's efforts in identifying and correcting the violation meet the criteria specified in section VII.B of the Enforcement Policy. The licensee identified and corrected this deficiency. Additional analysis had been performed to address the issue and assess the safety significance. The inspectors had previously verified that the interim corrective actions (a minor revision of an operating limit in the COLR) had been completed. A modification was installed to eliminate the vulnerability. A voluntary LER was submitted which addressed the issue. After additional review of the issue, the inspectors concluded that the information supported the conclusion that the issue did not significantly compromise plant safety and a report was not specifically required by 10 CFR 50.72 or 50.73. The licensee's current design controls are significantly different than those in effect at the time this problem occurred. This issue is identified as NCV 50-366/93-03-03: Loss of Feedwater Heating Single Failure Vulnerability Results in Operation in an Unanalyzed Condition.

One NCV was identified.

8. Inspection of Open Items (92700) (90712) (92701)

The following items were reviewed using licensee reports, inspection, record review, and discussions with licensee personnel, as appropriate:

a. (Closed) VIO 321/92-12-01: Failure to Comply with EFCV TS requirements. This violation addressed an instance where the key lock control switch for EFCV 1B21-F051C was left in the locked open position for over 18 hours. Procedure 64CH-SAM-007-0S: Automated Sampling/In-Line Analysis of Reactor Coolant and Containment Atmosphere, contained a step which indicated that the EFCV could be locked open in order to obtain a sample using the PASS. The procedure did not contain a step requiring the EFCV to be restored to the normal position. The inspector reviewed Revision 1 of Procedure 64CH-SAM-007-0S and noted that steps 7.1.11 (Unit 1) and step 7.2.11 (Unit 2) each contained a caution alerting personnel to a TS requirement that had to be addressed within four hours of locking the EFCVs in their open position. The inspectors have also observed successful testing of the PASS since this problem was identified.

An additional concern noted by the inspectors during the initial review of this problem involved the PASS return valves to the torus of both units. These valves were containment isolation valves, and Sections 7.5 and 7.6 of Procedure 64CH-SAM-007-0S did not adequately address resetting these valves during an actual post accident sampling evolution. This was identified as a procedural deficiency (Inspection Report 50-321,366/92-12 contains details). The inspector reviewed the latest revision to the procedure and noted that step 7.5.1.4 (Unit 1), and step 7.6.1.4 (Unit 2), were added. These steps direct the chemistry technician to notify the CR operator to override the PCIS, as needed, for operation of the applicable unit isolation valves. Based on this review and the review discussed in Inspection Report 50-321,366 /92-12, this violation is closed.

b. (Closed) VIO 366/92-08-02: Inadequate Component Identification During Maintenance Activities. This violation addressed an instance when, due to personnel error, an EDG was inadvertently rendered inoperable for 19 hours. The licensee's corrective action was to counsel the personnel in the proper method for identifying equipment in the field and train personnel in the Maintenance, Operations, Health Physics/Chemistry and Engineering Support departments in self checking techniques. The Hatch self checking program is referred to as SCOPE. The inspector reviewed Operations Department SCOPE Training Module OPS-SCOPE-00100-00: Manually Start the Core Spray System. This module was written to be used at the simulator in conjunction with System Operating Procedure 34SO-E21-001-2S: Core Spray System, to evaluate implementation of self checking techniques. Additional efforts intended to decrease future instances of such personnel errors

have been observed by the inspectors. The inspectors concluded from this review that the licensee has completed appropriate corrective actions to address this problem. This violation is closed.

c. (Closed) VIO 366/92-18-01: Failure to Perform PRB Review of a TMM. This violation addressed a failure to meet a TS administrative requirement concerning the activities and responsibilities of the PRB. The specific activity involved a temporary modification installed to electrically bypass a temperature monitoring switch in a trip channel for the Group 1 PCIS Logic. The licensee's corrective action included counseling involved personnel and closing out the inappropriate TMM. Subsequently, a new TMM (2-92-61), was written, reviewed by the PRB, approved by the appropriate level of management, and implemented. The inspector reviewed Section 8.2 of Procedure 34AC-OPS-005-0S: Review of Temporary Modification Initiation, which stated that if a component has a TS associated with it, it should be considered safety related for purposes of temporary modifications. This section provides directions for determining the component/equipment's safety related status. It also specifies that if a component/equipment is safety related then PRB review is required. The inspector reviewed the current TMM folders for both units and did not note any deficiencies. Based on these reviews this violation is closed.

d. (Closed) VIO 366/92-22-02: Inattentive Control Room Watchstander. This violation addressed the incidence of a CR operator who was inattentive while fuel was being unloaded from the reactor vessel to the spent fuel pool. A review of TS 3.9.6 indicated that direct communications between the CR and the refueling bridge must be maintained during fuel movement. The inspector immediately brought this to the CR supervisor's attention, who counseled the inattentive watchstander. The licensee's corrective action included removal of the watch stander from licensed duties, review the event with each operations shift crew and performance of checks during back shifts. The inspector observed CR back shift activities on several occasions and did not identify any further examples of inattentive control room watch standers. Based on these observations this violation is closed.

e. (Closed) URI 321/93-02-01: RHRSW Flow Control Valve Clogging. The inspectors continued to review the licensee's actions in response to a clogged flow control valve which rendered the "A" loop of Unit 1 RHRSW inoperable. In Inspection Report 50-321,366/93-02, the inspectors documented observation of the verification of the flow control valve position (1E11-F068A) when the flowrate of the loop A of RHRSW indicated 4000 gpm. The valve position was approximately 54% open. This information was obtained after the flow control valve had been cleaned. On February 9, 1993, the "B" loop was operated in a similar manner and the control valve indicated position was approximately 58%

open. This indicated that the loop B valve did not display an symptoms of clogging.

As part of the ERT activities after the event, the two loop B strainers, located in the intake building on the discharge side of the RHRSW pumps 1B and 1D, were removed and inspected. A small amount of debris was found and no structural damage was noted. Additional discussions with the licensee personnel and reviews of ERT activities indicated that the cause of the clogging of Loop A 1E11-F068A valve was a failed strainer on the "A" RHRSW loop. This failure was in a weld at the bottom of the strainer, may have been caused by stress surges experienced during the start of a RHRSW pump.

The inspector also reviewed Operating Order 00-01-0293. This order directed personnel to record RHRSW pressure, flow and F068 control valve position, both in the CR and locally, whenever RHRSW pumps were run and steady state flow conditions were established. Because the flowrate is roughly linear with valve position, any gradual clogging would be detected by these actions.

The inspector reviewed the licensee's Event Review Team Report 93-001. The five member team wrote an event description that did not include any information contrary to what the inspectors had independently obtained by field observations, reviews and discussions with licensee personnel. The investigation summary in the report concluded that river debris clogged valve 1E11-F068A due to the combination of a new valve design, a failed basket in strainer 1E11-D002A, and system startup pressure surges in the RHRSW system greater then 600 psig. The ERT report contained 54 items of factual information and based on these items, four conclusions were indicated. The report also contained eight recommendations as a result of the conclusions. A meeting was held at which plant management decided that most of the recommendations would be implemented. The inspectors concluded that the discussed actions would be adequate to prevent clogging of the valves (to the extent that a RHRSW loop is rendered inoperable). The licensee has already initiated action to ensure that, even if material does block the control valve throttling ports, additional operation of the valve in the open direction will make available a section of the valve containing large holes through which the required minimum flow can pass. This will involve modifying the internals of the valve. The inspectors noted that the post ERT management meeting resulted in timely decisions regarding proposed corrective actions. In the past, the ERT corrective action recommendations were sometimes not acted on until after significant delays while the reports were reviewed and discussed by the department managers. Indications are that the licensee intends to utilize such meetings to review recommendations from future ERTs involving significant issues.

The inspectors concluded that no regulatory requirements were violated. The clogging of the valve involved a combination of conditions which were not readily foreseeable. There is information which indicates that the extremely high river levels played a significant role in the introduction of some of the material into the system. The potential of flow control valve clogging had been considered during installation of the modification. Although the RHRSW strainer failures have been a recurring problem which has not been effectively resolved, this is the first time that the strainers have contributed to a safety significant problem. The inspectors noted that a questioning attitude by QR personnel regarding the increased opening of the valve necessary to pass the required flowrate might have identified the problem earlier. The applicable RHRSW TS action statements were entered when the problem was identified and were not exceeded. This item is closed.

f. (Closed) VIO 366/92-18-05: Failure to Identify and Report an Out of Limits Voltage Indication on 2B Station Service Battery Charger. This violation addressed a failure on the part of plant operations personnel to identify a deficient voltage reading on the 2B Station Service Battery Charger. This failure involved both the individual performing the voltage check/logging of the reading and personnel who subsequently reviewed the operations logged reading. This violation was a subjected of an enforcement conference conducted in the Region II office on September 8, 1992.

The inspector reviewed the licensee's response dated October 7, 1992. The licensee's corrective action included counseling and disciplining involved personnel, training operating teams, and emphasis from senior site management as to the importance of monitoring, logging, and reviewing safety system parameters. The inspector reviewed the licensee's Letter LR-OPS-001-0892, dated August 17, 1992, signed by the general manager, which emphasized the need to perform logging and review adequately. Additional programs to improve the attention to detail on the part of operations department personnel have been observed by the inspectors. Recently, the licensee has initiated use of a portable computer for collecting rounds data. This change will help prevent a recurrence of this type of error. Operators will be immediately alerted when an out-of-specification log reading is entered. A printout of the out-of-specification parameters will be easily obtainable and will facilitate effective supervisor review. The inspectors noted that the day-to-day activities of operations personnel in logging and reviewing safety system parameters has not resulted in a similar deficiency. Based on the review and observation of activities this violation is closed.

g. (Closed) LER 321/92-07: Human Factors Result in Automatic ESF Actuation. This LER addressed an inadvertent HPCI steam line isolation (valve 1E41-F002 automatically shut) which resulted after an I&C technician actuated a relay while installing its

cover. The cover for relay 1B21-K32A had been removed in accordance with an ATTS functional testing procedure. During reinstallation, the actuating arm was bumped and the relay actuated. Within 5 minutes, the cover was properly installed, the signal reset and 1E41-F002 was reopened. The inspectors reviewed the lesson plan which contained a training session (including demonstration) on the proper method to install the covers. It was presented as part of continuing education training for technical staff. Electrical maintenance personnel and I&C technicians were also specifically trained on this issue. Additionally, actions have been initiated to replace some of the relay covers with a type containing a glass window. This would allow personnel to observe the relay's position without removing the cover.Based on this review of the licensee's actions, this LER is closed.

h. (Closed) LER 321/92-11: Inadequate Procedure Results in TS Non-compliance. This LER addressed an incident in which a Unit 1 EFCV (1B21-F051C) had been inoperable for over 18 hours due to an improperly positional control switch. This event was reviewed in detail by the inspectors and is discussed in Inspection Report 50-321,366/92-12. A violation was issued addressing the failure of control room operators to recognize the problem within an appropriate period of time. Procedure 64CH-SAM-007-0S required that the switch be placed in "bypass" for PASS testing but did not direct that the switch be repositioned after the testing. Additionally, as discussed in Inspection Report 50-321,366/92-12, the inspectors noted that CR operators did not enter the appropriate TS action statement when the switch was in "bypass". Violation 50-321/92-12-01 is closed out in this section of this report.

As discussed in Inspection Report 50-321,366/92-15, the inspectors have observed successful testing of the PASS since this event utilizing the revised procedure. Based on the review discussed in Inspection Reports 50-321,366/92-12, 92-15, and this report, this LER is closed.

i. (Closed) LER 321/92-16: Blown Fuse Results in Unplanned ESF Actuations. This LER addressed a fuse in a Unit 1 RB vent exhaust radiation monitoring circuit which blew during testing. This resulted in the inadvertent actuation of several ESF systems. The fuse blew when the mode switch for monitor 1D11-609B was operated in accordance with the functional testing procedure (57SV-D11-008-1S). In 1990, this same fuse blew during performance of the same test. MWO 1-92-2927 was initiated as a result of this incident, and it directs that the involved monitors, wiring, and relays be checked for problems. Several of the trip auxiliary unit relays will be replaced. The inspectors verified that MWO 1-92-2927 is still scheduled to be completed during the upcoming Unit 1 outage. No other significant problems with this instrument have occurred since this event. Based on

this review of the licensee's actions, including verification that additional testing will be completed, this LER is closed.

j. (Closed) IFI 321,366/92-02-02: Improper Use of the Editorial Correction Process. This IFI addressed a programmatic weakness in the use of the editorial correction process. Inspection Report 50-321,366/92-02 discussed several problems which had occurred due to the inappropriate application of the editorial correction process. The licensee had identified some of the issues, and the inspectors had identified an issue. As part of the corrective actions for LER 321/92-002, the operations department developed a checklist to be used for all editorial corrections. However, the General Manager - Plant Hatch terminated all use of the editorial correction process as a result of the incidents of misuse. The general use of the editorial corrections has continued to be suspended. Departments were maintaining files of editorial issues in procedures, and incorporating those changes into procedure revisions. Recently, the general manager has permitted several of the onsite departments to begin implementing editorial corrections. Permission has been granted on a case-by-case basis after the department manger presented specific actions to ensure the process will not be misapplied. The inspectors have noted that the number of editorial corrections implemented in those departments has been small. No inappropriate editorial corrections have been identified by the inspectors. Based on this review, this item is closed.

k. (Closed) VIO 366/92-18-04: Failure to Comply with Station Battery and Battery Charger Technical Specifications. This violation addressed several deficiencies involving an inoperable station service battery charger and a degraded station service battery. Inattention to detail by operations personnel, inadequate post maintenance functional testing, and a failure to promptly recognize the degradation of the battery were among the concerns identified. This violation was a subject of an enforcement conference conducted in the Region II office on September 8, 1992. The inspector reviewed the licensee's response dated October 7, 1992. In the response the licensee stated that several personnel errors were made, such as incorrectly concluding that a zero amperage charger output reading was acceptable and did not impact charger operability. After the battery charger was repaired it was returned to operable status with an inadequate post maintenance functional test. The licensee's corrective action included counseling and disciplining involved personnel, training operating teams on this event, revising functional testing to specifically address tests for battery chargers and replacing the Unit 2 station service battery chargers. The inspector observed and reviewed the replacement of the Unit 2 station service battery chargers which was implemented by DCR 87-115. This review also included post modification testing. The inspector reviewed Procedure 34GO-OPS-030-2S: Daily Inside Rounds, and noted that Section 7.2.3, Control Building Logs, Sub-section 7.2.3.4, gave

specific directions as to the normal line up of the station service battery chargers; and also noted that Attachment 2, Control Building Log, gave acceptable voltage and current limits, and gave the acceptable limits when the chargers were in the float or equalizing charging modes. Based on these reviews and the observations discussed in Paragraph 8f of this report, this violation is closed.

1. (Closed) LER 366/92-13: Single Failure Vulnerability Discovered in BOP System. Paragraph 7 of this report contains a discussion of additional review conducted on this item. An NCV was identified. Based on the review discussed in this report, this item is closed.

9. Exit Interview

The inspection scope and findings were summarized on March 16, 1993, with those persons indicated in paragraph 1 above. The inspectors described the areas inspected and discussed in detail the inspection findings. The licensee did not identify as proprietary any of the material provided to or reviewed by the inspectors during this inspection.

Item Number	Status	Description and Reference
50-366/93-03-01	Open	URI-Failure to Identify Inaccurate RB Stack Flow Rate Recorder Indications, paragraph 3b.
50-321/93-03-02	Open and Closed	NCV-Inappropriate Installation of Welded Metal Wedges in the MCREC system, paragraph 6b.
50-366/93-03-03	Open and Closed	NCV-Loss of Feedwater Heating Single Failure Vulnerability Results in Operation in an Unanalyzed Condition, paragraph 7.

10. Acronyms and Abbreviations

A/E - Architect Engineer
APRM - Average Power Range Monitor
ATTS - Analog Transmitter Trip System
BOP - Balance of Plant
BWR - Boiling Water Reactor
cfm - Cubic Feet per Minute
CFR - Code of Federal Regulations
COLR - Core Operating Limits Report
CR - Control Room
CS - Core Spray

DC - Deficiency Card
DCR - Design Change Request
ECCS - Emergency Core Cooling System
EDG - Emergency Diesel Generator
EFCV - Excess Flow Check Valve
EOF - Emergency Operations Facility
ERT - Event Review Team
ESF - Engineered Safety Feature
EST - Eastern Standard Time
FSAR - Final Safety Analysis Report
GL - Generic Letter
gpm - Gallons Per Minute
HPCI - High Pressure Coolant Injection System
I&C - Instrumentation and Controls
IFI - Inspector Followup Item
LCO - Limiting Condition for Operation
LER - Licensee Event Report
MAPLHGR - Maximum Average Planar Linear Heat Generation Rate
MCRECS - Main Control Room Environmental Control System
MWO - Maintenance Work Order
NCV - Non-cited Violation
NRC - Nuclear Regulatory Commission
NRR - Office of Nuclear Reactor Regulation
NSAC - Nuclear Safety and Compliance
PASS - Post Accident Sampling System
PCIS - Primary Containment Isolation System
P&ID - Piping and Instrument Diagram
PRA - Probabilistic Risk Assessment
PRB - Plant Review Board
psig - Pounds Per Square Inch Gauge
PSW - Plant Service Water System
RB - Reactor Building
REA - Request for Engineering Assistance
RHR - Residual Heat Removal
RHRSW - Residual Heat Removal Service Water System
RT - Repair Tag
SBGT - Standby Gas Treatment System
SCS - Southern Company Services
SCOPE - Stop, Consider, Observe, Perform, and Evaluate
SED - System Evaluation Document
SPDS - Safety Parameter Display System
SS - Shift Supervisor
STA - Shift Technical Advisor
TMM - Temporary modifications
TS - Technical Specifications
TSC - Technical Support Center
URI - Unresolved Item
VIO - Violation