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

Report Nos.: 50-321/90-26 and 50-366/90-26

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

Docket Nos.: 50-321 and 50-366 License Nos.: DPR-57 and NPF-5

Facility Name: Hatch Nuclear Plant

Inspection Conducted: December 16, 1990 - January 12, 1991

Inspectors: _____ 1/29/91
for Leonard D. Wert, Jr., Sr. Resident Inspector Date Signed

_____ 1/29/91
for Randall A. Musser, Resident Inspector Date Signed

Approved by: Alan R Herdt 1/29/91
Alan R. Herdt, Chief, Reactor Projects Branch 3 Date Signed
Division of Reactor Projects

SUMMARY

Scope: This routine, announced inspection involved inspection on-site in the areas of operations including the Unit 2 spent fuel pool overfill, maintenance activities, surveillance testing including the "Two Hour Inoperability for Testing" issue, Inoperability of the Unit Two Offgas Post-Treatment Radiation Monitors, and review of open items.

Results: One violation was cited involving the extended inoperability of the Unit Two Offgas Post-Treatment Radiation Monitors due to mispositioned valves. This incident was the third example (in the last several months) of radiation monitoring equipment being inoperable due to improperly positioned valves or switches. (paragraph 5)

A weakness was noted in the area of corrective action. The licensee failed to take timely action to correct previously identified deficiencies involving the spent fuel pool level alarm systems. The malfunctioning of these alarms contributed to the overflow of the fuel pool discussed in the report. (An IFI was written to follow this issue) (See Paragraph 2b)

A significant weakness was noted involving control and monitoring of the operability of TS required Protective Instrumentation Systems during surveillance testing. A long standing policy of not entering appropriate TS LCOs during instrumentation surveillance testing played a significant role in the issue. Surveillance testing procedures permitted equipment to be rendered inoperable for TS surveillance without the required LCO being entered despite lack of specific guidance. The inspectors noted several examples of utilization of this "allowable inoperability period" which further emphasized the significance of this practice. (See paragraph 3b)

REPORT DETAILS

1. Persons Contacted

Licensee Employees

C. Coggin, Training and Emergency Preparedness Manager
D. Davis, Plant Administration Manager
*D. Edge, Nuclear Security Manager
*P. Fornel, Maintenance Manager
*O. Fraser, Safety Audit and Engineering Review Supervisor
*G. Goode, Engineering Support Manager
*M. Googe, Outages and Planning Manager
J. Hammonds, Regulatory Compliance Supervisor
*J. Lewis, Operations Manager
*C. Moore, Assistant General Manager - Plant Support
*D. Read, Assistant General Manager - Plant Operations
H. Sumner, General Manager - Nuclear Plant
*S. Tipps, Nuclear Safety and Compliance Manager
R. Zavadoski, Health Physics and Chemistry Manager

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

NRC Resident Inspectors

*L. Wert
*R. Musser

NRC management/officials on site during inspection period:

K. Brockman, Chief, Reactor Projects Section 3B, Region II
J. Milhoan, Deputy Regional Administrator, Region II
K. Rogers, Commissioner, Nuclear Regulatory Commission

*Attended exit interview

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

2. Plant Operations (71707)

a. Operational Status

Both Units operated at power during the entire reporting period. At the end of this report period, Unit 2 had operated at power continuously for over 285 days.

The inspectors reviewed plant operations throughout the reporting period to verify conformance with regulatory requirements, Technical Specifications (TS), and administrative controls. Control room logs, shift turnover records, temporary modification logs, LCO logs and equipment clearance records were reviewed routinely. Discussions were conducted with plant operations, maintenance, chemistry, health physics, instrumentation and control (I&C), and nuclear safety and compliance (NSAC) personnel.

Activities within the control rooms were monitored on an almost daily basis. Inspections were conducted on day and on night shifts, during weekdays and on weekends. Observations included control room 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 Safety Parameter Display system were monitored. Control Room observations also included ECCS system lineups, containment integrity, reactor mode switch position, scram discharge volume valve positions, and rod movement controls. 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.

Several safety-related equipment clearances that were active were reviewed to confirm that they were properly prepared and executed. Applicable circuit breakers, switches, and valves were walked down to verify that clearance tags were in place and legible and that equipment was properly positioned. Equipment clearance program requirements are specified in licensee procedure 30AC-OPS-001-0S, "Control of Equipment Clearances and Tags." No major discrepancies were identified.

Selected portions of the containment isolation valves 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.

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 Structure
Diesel Generator Building
Fire Pump Building
Waste Gas Treatment Building

During the plant tours, ongoing activities, housekeeping, security, equipment status, and radiation control practices were observed.

On December 20, 1990 NRC Commissioner Rogers visited the Hatch site. During his tour, particular emphasis was placed on the training facilities and training techniques for various disciplines onsite. Additionally, a working lunch presentation was made by plant management which discussed plant status, details of the maintenance department and future plans. The commissioner also met individually with selected operators and management.

h. Unit 2 Spent Fuel Pool Overflow (71707) Unit 2

On December 28, 1990 at approximately 0245 it was discovered that the Unit 1 Spent Fuel Pool (SFP) level had increased to a point that it overflowed into the RB ventilation ductwork. Due to maintenance on portions of the Unit 2 fuel pool cooling (FPC) system, the Unit 1 FPC system had been cross connected to supply cooling to the Unit 2 pool. Apparently, during earlier evolutions to place the '1B' FPC pump in service, the level in the Unit 2 pool had been intentionally increased slightly to improve pump suction pressure. The '2A' skimmer surge tank high level alarm was present because of this higher level. At approximately 0130 on December 28, 1990, a backwash and precoat operation on the '1A' FPC demineralizer commenced. Apparently, during this evolution, water was diverted from the Unit 1 SFP to the Unit 2 SFP. The level had been verified normal at 2330 during PEO rounds. The '2B' skimmer surge tank alarm and the SFP level alarm both did not function to alert the operators of the situation. The overflowing level was discovered by HP technicians who observed water leaking from the reactor building ventilation ductwork.

Estimates indicate that several hundred gallons of water overflowed into the ventilation system. Several gallons leaked out of the ductwork and contaminated approximately 1800 square feet of floorspace, primarily in the Unit 2 recirculation pump motor generator set rooms. The overflowing pool water entered the RB

ventilation system through ductwork which normally draws air from the surface level of the pool (Inlets are about 6-8 inches above skimmer intake level). From here the water apparently descended to the 203 level by way of ventilation ductwork. Several areas had to be decontaminated as a result of water leaking out of the ductwork at various locations including the Unit 2 'A' and 'B' recirculation pump motor generator set rooms on the 158 level. Walkdown of the involved ventilation piping by the inspectors indicated that water had flowed from the SFP intakes down to the 203 elevation into a ventilation drain pot. The pot is 24 inches in diameter and has a drain valve (FD101) which was shut as required for Unit Two secondary containment. Apparently, the water filled up this drain pot and adjoining piping and flowed into another ventilation header. This header descended downward to the 158 elevation and traversed the overhead in the recirculation pump motor generator set rooms. Water leaked from gaskets in this header into the rooms. Levels of contamination were not excessive. An inspection by the licensee indicated that no moisture reached the refueling floor ventilation system filters.

The licensee's investigation into this situation and its root cause is still continuing. Apparently the Fuel Pool high level alarm did not function because the float inside the detector tube has insufficient clearance and frequently sticks. An SOR (2-90-013) was written on this level detector back in January of 1990. In accordance with the commitments of SOR 2-90-013 a DCR to correct the situation was to be implemented by December, 1990. At the time of the event plant engineering support was in the process of requesting an extension to the required implementation date for this DCR. Although the failure of this alarm did not initiate this event it did cause the level increase to remain undetected for a longer time. The failure to repair the level detector in a timely manner is an example of inadequate corrective action on the part of the licensee. The failure of the B skimmer surge tank high level alarm was determined by I & C technicians to be caused by a failure to adequately purge all air out of the sensing lines. This problem has also occurred previously, and is currently being evaluated by plant engineering support. The apparent lack of timeliness involving corrective actions on these malfunctioning alarms is considered a weakness. The inspectors will continue to monitor the licensee's investigation into the overflow and it will be tracked as IFI 50-321,366/90-26: Overflow of Spent Fuel Pool into Ventilation System.

One IFI was identified.

3. Surveillance Testing (61726)

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. 52SV-R42-002-2S; Battery/Individual Cell Surveillance

2. 42FH-ENG-028-1S; CRD Withdrawal Stall Flow Test

3. 34SV-C11-003-1S; Control Rod Weekly Exercise

b. Two Hour Inoperability Period for Surveillance Testing (61726)

Over the past several weeks, the inspectors have been investigating a licensee practice which allows for a two hour "out-of-service" time (prior to entering the appropriate TS LCO) for technical specification equipment/instrumentation surveillances. This practice is specifically permitted, for example, by the Units 1 and 2 TS for RPS and Isolation Actuation Instrumentation surveillance. In response to the inspector's inquiries for documented guidance which permits such practice, the licensee provided a letter dated December 14, 1987, in which licensee management applied this policy to all technical specification instrumentation surveillance testing. The licensee stated that since RPS and Isolation Actuation equipment are the most critical systems, it was felt that applying the two hour limit to other equipment (for which the TS did not specifically provide allowable inoperability periods) was reasonable and permitted. This practice is not specifically permitted by the TS and by providing such guidance within the approved surveillance procedures, TS requirements were incorrectly interpreted. The inspectors have discussed this issue with several shift supervisors who also indicated that their understanding was that TS did not provide the "allowable inoperability period" which the procedures permitted.

Even if a such a designated time period was approved for surveillance testing of selected equipment, this period would not be intended for utilization as time to perform diagnostic, corrective, or extensive troubleshooting on suspect equipment. Additionally, it would not be intended that this designated period be repeatedly entered and exited

as necessary to accomplish testing without entering the appropriate LCO. The inspectors noted several examples of improper utilization of the current two hour "allowable inoperability period" including;

- On December 18, 1990, while performing a diagnostic evaluation of the Unit 2 Scram Discharge Volume Level sensors (2C11-N660A-D) due to half scrams being received, instrument 2C11-N660A was removed from service, but not declared inoperable until attempts to calibrate it had failed. This sensor should most likely have been declared inoperable as soon as it was removed from service for troubleshooting.

- On December 20, 1990, while performing scheduled surveillance on the Unit 2 Hydrogen/Oxygen Analyzers (2P33-R601A&B), a minor problem was encountered. The surveillance was stopped and the instrument returned to standby and not declared inoperable. At this point, the two hour out-of-service time frame was also exited. Approximately 1.5 hours later, the surveillance was recommenced and the two hour "out-of-service" clock reinitiated. Approximately two hours later, when it became apparent that the instrument would not pass the surveillance test, the 'A' analyzer was declared inoperable.

- On January 10, 1991, while performing troubleshooting on the Unit 2 Hydrogen/Oxygen Analyzers (2P33-R601A&B), both the 'A' and 'B' units were individually removed from service and the two hour "out-of-service time" applied. In the case of the 'B' analyzer, the two hour out of service time was exceeded without the appropriate TS Action Statement being taken due to improper tracking of the out of service equipment.

By not entering the appropriate LCO during testing, informal control and monitoring is usually relied upon to prevent removal of too many trains or channels of TS required systems. Although the inspectors did not specifically note any instances in which several trains of channels of equipment were removed from service inadvertently, the possibility of such an occurrence was significantly increased by this policy. The policy of not entering LCOs when equipment is rendered inoperable also effects tracking of a systems unavailability periods. A system, while rendered inoperable for required testing, is sometimes not categorized and logged as inoperable. Periods of safety system unavailability are not always being accurately documented.

At the time of the writing, the licensee is conducting discussions with the regional office, NRR, and the resident inspectors on the resolution of this issue. The residents will closely monitor this issue. IFI 321,366/90-26-02: Failure to Enter Appropriate TS Limiting Condition for Operation During Instrumentation Surveillance Testing will be used to track this issue.

One IFI was identified.

4. Maintenance Activities (62703)

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 were reviewed and witnessed in whole or in part:

a. MWO 2-91-0009; Monitoring/troubleshooting of Low Specific Gravity of Unit 2 "2B" Station Service Battery Pilot Cell. In addition, the Replacement of Electrolyte in Battery Cells 48 and 49 was observed in accordance with procedure 42SP-010391-0S-1-2S.

b. MWO 2-91-0119; Rebuilding of Plant Service Water Pump 2A (2P41-C001A)

No violations or deviations were identified.

5. Offgas Post-Treatment Radiation Monitors Inoperable (Unit 2) (71707)

On December 20, 1990, at approximately 1050, with Unit 2 operating at approximately 100 percent of rated thermal power the licensee discovered that the Unit 2 Offgas Post-Treatment Radiation Monitors (2D11-K615 A and B) had been out of service for some time due to an improper valve lineup. Apparently, when the previous grab sample was obtained on November 23, 1990, the chemistry technician performing the sampling activity most likely failed to restore the system to the proper valve lineup. Consequently, the monitor's sample pump was sampling the contents of the waste gas treatment building and not the offgas system as required. If an event in which an increase offgas activity had occurred which could have resulted in a release exceeding the limits specified in Unit 2 Technical Specification Section 3.11.2.1 (which are based on the limits specified in 10 CFR 20), the Offgas Post-Treatment Radiation Monitors (2D11-K615 A and B) would not have been able to perform their design function and isolate offgas flow. However, the Offgas Pre-Treatment Monitors and the Main Stack Radiation Monitors were operable and would have alarmed had an event occurred causing an increase in offgas radiation levels.

In addition, as a result of the improper valve lineup, offgas effluent was being discharged into the Waste Gas Treatment Building. However, the atmosphere of the Waste Gas Treatment Building was being monitored on a daily basis during the event, and no significant increases in airborne

activity were noted during the period in question. Furthermore, the exhaust ventilation for the Waste Gas Treatment building is routed to the Main Stack for dilution and elevated release. During the period in question (November 23 - December 20, 1990), no appreciable increases were noted in offgas radiation levels.

Table 3.3.6.1-1 of Unit 2 TS 3.3.6.1 requires that both channels of the Offgas Post-Treatment Radiation Monitors to be operable in operational conditions 1 and 2 (Power Operations and Startup). The failure to have the Offgas Post-Treatment Radiation Monitors in an operable status is a violation of TS 3.3.6.1. This issue is identified as Violation 50-366/90-26-03, Inoperable Post-Treatment Radiation Monitors.

During the past two months, similar events have occurred involving mispositioned switches and valves on sampling equipment. On November 30, 1990, Violation 50-366/90-23-01: "Failure to perform TS Required Compensatory Measures During FPM Inoperability" was cited involving inoperability of the Unit 2 FPM due to a mispositioned switch. This violation was identified by the inspectors. Apparently a lack of attention to detail and less than adequate procedural guidance contributed to this event. Corrective actions for this event included revising the FPM procedure to include the correct position of the involved mispositioned switch, revising the applicable annunciator response procedures, and counseling the involved personnel. It would appear that these corrective actions were too specific in that they would not preclude similar problems from occurring with other sampling equipment.

On December 10, 1990, at approximately 1430, the licensee identified that the Unit 1 noble gas monitoring portions of the FPM was bypassed due to a valving error. Apparently, while obtaining a drywell oxygen sample the previous day, the chemistry technician failed to properly realign the noble gas monitor. The licensee is currently conducting an event review on this matter.

Upon identification of the December 20, 1990 event, the licensee immediately initiated corrective actions. First, the Offgas Post-Treatment Radiation Monitors were returned to service. Additionally, the following systems were checked for proper valve positions; Unit 1 and 2 FPM systems, Main Stack Radiation Monitoring System, Unit 1 Recombiner Building Vent Stack Radiation Monitoring System, Unit 1 and 2 Reactor Building Stack Radiation Monitoring Systems. No discrepancies were identified. On December 20, 1990, a HP/Chemistry Department standing order (SO-HPC-002-1290) was issued requiring a Chemistry Foreman to be in attendance during gaseous sampling activities for the purpose of verifying and documenting proper valve lineup during and after sampling.

Additionally, on December 21, 1990, a chemistry department training memo was issued to chemistry foreman for discussion with all chemistry personnel emphasizing the following:

- details of the December 10 and December 20 events
- procedural compliance, particularly step-by-step performance of procedures
- attention to detail
- standing order SO-HPC-002-1290

Finally, a review of appropriate chemistry procedures is under way to determine which procedures should include sign offs and independent verification for valve manipulations. The licensee intends for this review and procedure revisions to be completed by April 30, 1991. The resident inspectors will continue to monitor the licensees activities in this area.

One violation was identified.

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

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

(Closed) Violation 50-321/90-15-01: Mispositioned Valves in the Core Spray System. The inspector reviewed the licensee's letter of response dated September 12, 1990. Corrective action involved returning the mispositioned valves to their correct positions, revising the Core Spray System operating procedure (3450-E21-001-1S), and disciplining involved personnel. The valves mispositioned valves were returned to their correct positions on the dates they were discovered out of position. The repositioning of these valves was verified by the inspector. Additionally, the inspector verified that on September 24, 1990, the licensee issued revision 9 to procedure 34SO-E21-001-1S, "Core Spray System," which ensures that valves 1E21-F025 A and B and 1E21-F027 A and B are closed when returning a jockey pump to service. Finally, the inspector verified, through discussions with I & C supervision that the involved I & C personnel had been disciplined. This event was also discussed with all I & C personnel during the October 1990 "tool box meeting." Review of this matter is closed.

7. Exit Interview

The inspection scope and findings were summarized on January 11, 1991, 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.

During the exit meeting, a discussion was held regarding the inspector's characterization of the issue involving the licensee's policy of not entering TS LCOs during surveillance testing. (See paragraph 3b) Licensee management took issue primarily with the inspectors characterization of the issue as an example of nonconservative interpretation of regulatory requirements. As discussed in paragraph 3b, at the time the licensee issued the guiding documentation which established this policy, the licensee perceived this as a conservative policy. Licensee management feels that while this issue may involve actions which are not "administratively" correct in respect to the TS, their current policy is "technically" correct and operationally conservative.

Item Number	Status	Description and Reference
50-321,366/90-26-01	Opened	IFI - Overflow of Spent Fuel Pool into Ventilation System (paragraph 2b)
50-321,366/90-26-02	Opened	IFI - Failure to Enter Appropriate TS Limiting Condition for Operation During Instrumentation Surveillance Testing (paragraph 3b)
50-366/90-26-03	Opened	VIOLATION - Inoperable Post-Treatment Radiation Monitors (paragraph 5)
50-321/90-15-01	Closed	VIOLATION - Mispositioned Valves in the Core Spray System (paragraph 6)

8. Acronyms and Abbreviations

CFR - Code of Federal Regulations
CRD - Control Rod Drive
DCR - Design Change Request
ECCS - Emergency Core Cooling System
ESF - Engineered Safety Feature
FPC - Fuel Pool Cooling System
FPM - Fission Product Monitor
HP - Health Physics
I&C - Instrumentation and Controls
IFI - Inspector Followup Item

LCO - Limiting Condition for Operation
LER - Licensee Event Report
MWO - Maintenance Work Order
NCV - Non-cited Violation
NRC - Nuclear Regulatory Commission
NRR - Office of Nuclear Reactor Regulation
NSAC - Nuclear Safety and Compliance
PCIS - Primary Containment Isolation System
PEO - Plant Equipment Operator
RB - Reactor Building
RPS - Reactor Protection System
SAER - Safety Audit and Engineering Review
SFP - Spent Fuel Pool
SOR - Significant Occurrence Report
SOS - Superintendent On Shift (Operations)
TS - Technical Specifications
URI - Unresolved Item