UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30303

Report Nos. 50-321/82-19 and 50-366/82-19

Licensee: Georgia Power Company
P.O. Box 4545
Atlanta, GA 30302

Facility Name: Hatch 1 and 2

Docket Nos. 50-321 and 50-366

License Nos. DPR-57 and NPF-5

Inspection at Hatch site near Baxley, Georgia

Inspector: John F Rogge, for — July 29, 1982
R. F. Rogers — Date Signed

Approved by: D C Dance/fn — 7/29/82
V. L. Brownlee, Section Chief, Division of Project and Resident Programs — Date Signed

SUMMARY

Inspection on April 21 - May 25, 1982

Areas Inspected

This inspection involved 120 inspector-hours on site in the areas of Technical Specification compliance, housekeeping, operator performance, overall plant operations, quality assurance practices, station and corporate management practices, corrective and preventive maintenance activities, site security procedures, radiation control activities, surveillance activities, Licensee Event Reports (LERs), and Unit 1 Chemistry Excursion.

Results

Of the 12 areas inspected, no violations or deviations were identified in eleven areas, one violation was identified in one area (failure to follow technical specification requirements during fuel loading - paragraph 7). An enforcement conference was conducted in Region II office on July 26, 1982.

DETAILS

1. Persons Contacted

   Licensee Employees

   *H. Nix, Plant Manager
   *T. Greene, Assistant Plant Manager
   *C. Jones, Assistant Plant Manager
   S. Baxley, Superintendent of Operations
   R. Nix, Superintendent of Maintenance
   C. Coggins, Superintendent of Engineering Services
   W. Rogers, Health Physicist
   *C. Belflower, QA Site Supervisor

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

   *Attended exit interview

2. Exit Interview

   The inspection scope and findings were summa[illegible] April 29, and May 5, 6 and 25, 1982, with those persons indicated in paragraph 1 above.

   A management meeting at the Hatch facility was conducted on July 13 with J. T. Beckham and other members of the Georgia Power staff and H. C. Dance and V. L. Brownlee of NRC Region II office. An enforcement conference was conducted in the Region II office on July 26 with G. F. Head and other members of the Georgia Power staff and R. D. Martin, R. C. Lewis and other members of NRC management staff. At both the July 13 and 26, 1982 meeting, Georgia Power summarized the fuel movements on May 15 and 16, 1982. In addition to prompt review and procedural changes taken to resume fuel movement, the licensee presented the following long term corrective actions to prevent recurrence.

   1. Backing out of a procedure will be addressed by a procedure now being developed.

   2. Comprehensive review and revision as required of refueling procedures before the next refueling outage. Several examples where revisions were needed were identified.

   3. Standing Order 82-23 issued to specify tighter controls on changes to procedures.

   4. The items above and additional items will be applied in a consistent manner to Unit 1 and Unit 2.

A second topic of discussion at the July 13 and 26 meetings involved the noted increase of personnel errors associated with License Event Reports. The licensee had noted this trend and presented a broad number of corrective actions being taken to improve performance in this area. The meetings were beneficial and permitted a candid exchange of views.

3. Licensee Action on Previous Inspection Findings

Not inspected.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Plant Operations Review (Units 1 and 2)

The inspector periodically during the inspection interval reviewed shift logs and operations records, including data sheets, instrument traces, and records of equipment malfunctions. This review included control room logs and auxiliary logs, operating orders, standing orders, jumper logs and equipment tagout records. The inspector routinely observed operator alertness and demeanor during plant tours. During normal events, operator performance and response actions were observed and evaluated. The inspector conducted random off-hours inspections during the reporting interval to assure that operations and security remained at an acceptable level. Shift turnovers were observed to verify that they were conducted in accordance with approved licensee procedures.

Within the areas inspected, no violations or deviations were identified.

6. Plant Tours (Units 1 and 2)

The inspector conducted plant tours periodically during the inspection interval to verify that monitoring equipment was recording as required, equipment was properly tagged, operations personnel were aware of plant conditions, and plant housekeeping efforts were adequate. The inspector also determined that appropriate radiation controls were properly established, critical clean areas were being controlled in accordance with procedures, excess equipment or material is stored properly and combustible material and debris were disposed of expeditiously. During tours the inspector looked for the existence of unusual fluid leaks, piping vibrations, pipe hanger and seismic restraint settings, various valve and breaker positions, equipment caution and danger tags, component positions, adequacy of fire fighting equipment, and instrument calibration dates. Some tours were conducted on backshifts.

Within the areas inspected, no violations or deviations were identified.

7. Technical Specification Compliance (Units 1 and 2)

During this reporting interval, the inspector verified compliance with selected limiting conditions for operations (LCO's) and results of selected surveillance tests. These verifications were accomplished by direct observation of monitoring instrumentation, valve positions, switch positions, and review of completed logs and records. The licensee's compliance with selected LCO action statements were reviewed on selected occurrences as they happened.

On Monday May 17, 1982, the licensee reported that, on two occasions during the weekend, fuel bundles had been loaded into the Unit 1, reactor without all control rods installed as required by Technical Specification 3.10.B (LER 50-321/82-49). The occurrences were noticed Monday morning when supervisory personnel reviewed weekend activities. Unit 1 was shutdown due to a water chemistry problem which occurred on April 24, 1982. On May 16, 1982, 2? bundles were loaded with control rod 10-23 withdrawn. On the morning of May 17, 1982, 2 bundles were loaded with control rod 10-31 withdrawn. The Technical Specification requirement was overlooked by licensed personnel in the control room and on the refueling floor in both instances. The control rods had been withdrawn to investigate the impact of the chemistry problem (paragraph 10). In both instances fuel was not locked into the cell where the control blade was removed. The Region II evaluation determined that although the administrative controls governing fuel moves were negated and resulted in the exceeding of the limiting condition for operation, the significance of this specific event was limited. When the licensee's management recognized the problem they immediately suspended operations and evaluated the circumstances. It is noted that had the events occurred on Unit 2 the Technical Specifications would have allowed the fuel move had certain prerequisites been met. This is a violation (50-321/82-19-01).

8. Physical Protection (Units 1 and 2)

The inspector verified by observation and interviews during the reporting interval that measures taken to assure the physical protection of the facility met current requirements. Areas inspected included the organization of the security force, the establishment and maintenance of gates, doors and isolation zones in the proper condition, that access control and badging was proper, and procedures were followed.

Within the areas inspected, no violations or deviations were identified.

9. Review of Nonroutine Events Reports by the Licensee (Unit 1)

The following Licensee Event Reports (LERs) were reviewed for potential generic impact, to detect trends, and to determine whether corrective actions appeared appropriate. Events which were reported immediately were also reviewed as they occurred to determined that Technical Specifications were being met and that the public health and safety were of utmost consideration. Astericked reports were followed up indepth onsite.

LER No.	Date of Report	Description
50-321/81-87	09-25-81	Refueling Floor Vent Exhaust Rad Monitor tripped
50-321/81-96	10-01-81	Switch 1C71-N003D out of specifications
50-321/81-97	10-06-81	RHRSW Pumps A, B&D failed rated flow and head tests*
50-321/81-98	09-25-81	Failure to take Required I-131 samples from primary coolant*
50-321/81-99	10-06-81	Torus vacuum relief valve failed to open
50-321/81-100	10-06-81	Div. I PSM strainer 1P41-D103A failure
50-321/81-101	10-13-81	RHRSW pump E11-C001B failed to meet rated flow
50-321/81-102	10-14-81	HPCI control valve diaphragm rupture*
50-321/81-103	10-06-81	Recombiner Building vent Rad. Monitor Inoperable.
50-321/81-104	10-08-81	Main steam line rad monitor inoperable.
50-321/81-115	12-10-81	Rx pressure scram switches out of calibration*
50-321/81-116	12-10-81	IRM functional test performed 4 hours late*
50-321/81-117	12-15-81	Standby gas treatment filter train inoprable*
50-321/81-118	11-17-81	Rx water level switch out of tolerance*
50-321/81-119	11-10-81	SRM Surveillance not performed*
50-321/81-121	12-01-81	IRM 1C51-K601E failed functional test while IRM C was inoperable for maintenance
50-321/81-123	12-10-81	RHRSW Pump A high temp alarm
50-321/81-124	12-10-81	Torus D/P Tx 1T48-N008 Drain valve closed
50-321/81-125	12-17-81	Primary containment personnel airlock innerspace leakage*

50-321/81-126	12-15-81	Rx low-low level relay inoperable
50-321/81-128	12-15-81	H2-O2 analyzer recorder 1P33-R601B found inoperable
50-321/81-130	12-15-81	RHR heat exchanger out of service without subsystem being made operable*
50-321/81-137	01-05-82	Main steam line rad monitor 1D11-K60313 inoperable
50-321/81-138	01-07-82	HPCI auxiliary oil pump cycling with eratic valve movement*
50-321/81-139	01-07-82	Drywell torus multipoint temp. recorder 1T47-R611 found inoperable
50-321/81-140	01-07-82	Shorted electrical circuit on fuse block in rod sequence control panel*
50-321/81-141	01-12-82	Drywell temperature recorder 1T47-R612 found inoperable*
50-321/81-143	01-19-82	Control on Rx level switch 1B21-N031A failed to activate

10. Reactor Water Chemistry Anomaly (Unit 1)

The inspector examined laboratory analyses, control room charts and logs and discussed with licensee representatives all information available concerning the Unit 1 chemistry excursion of April 24, 1982.

The inspector noted that the reactor water cleanup (RWC) inlet conductivity showed a rapidly deteriorating chemistry condition with conductivity going from 0.3 micro-mhos/cm to 10 micro-mhos/cm within 5 hours after the start of the excursion. Conductivity increases of smaller magnitudes were also seen in the condenser hotwell and feedwater. The higher conductivity of RWC inlet was attributable to the distillation property of the boiling water reactor which tends to concentrate impurities. The inspector also noted that other plant parameters were systematic of a chemistry excursion. These parameters were moderately elevated recombiner temperatures, elevated main steam radiation levels, decreasing reactor water pH, and increasing reactor water chloride concentrations. The recombiner temperature increased by 100°F for about 30 minutes at the beginning of the excursion. The increase in temperature was probably caused by increased radiolysis of the reactor water due to some impurity. The main steam radiation level increases occurred at the same time as the elevated recombiner temperature and were probably do to neutron activation of some inpurity. The reactor water pH decreased from 6.5 to 5.8 during the first 5 hours of the excursion.

After 24 hours the chloride concentration, the copper concentration, conductivity and pH of the reactor water were 2.1 ppm, 16 ppm, 20 micro-mhos and 4.9 respectively. No readily apparent cause of the anomaly could be discerned.

The reactor was immediatley shutdown from 100% power on April 24, 1982 when plant chemistry valves exceeded technical specification limits for conductivity (10 umho/cm). Cold shutdown conditions were attained the following day. It was first thought that the plant had experienced a resin intrusion incident, but later investigation by the licensee revealed the potential for a chemical cleaner (MOMAR) pathway to the reactor. The licensee planned to remain shutdown for approximately five weeks pending its investigation of and cleanup from this event.

The licensee met with NRC representatives on May 19, 1982 in Atlanta, GA to present their findings as a condition to restart the unit. The licensee concluded that the chemistry anomaly experienced was due to injection of a chemical cleaner called MOMAR ELECTRO SAFE which was apparently spilled into a turbine building sump and ultimately was pumped into the reactor vessel via the radwaste system. This cleaner exibited the pH drop, chlorides, and organics characteristic of the event. Twenty six of thirty one local power range monitors (LPRM) failed due to elevated chloride levels and were replaced. The licensee stated that the plant had instituted stringent accountability controls over the use of industrial chemicals to prevent recurrence. The licensee also stated that organic sampling was now routinely done and would detect the presence of organics in the future. General Electric representatives stated that a control blade and an LPRM would be examined and the results provided to NRC via GPC. The licensee also stated that an augmented inservice inspection program (ISI) would be completed. The augmented program included 15 program elements to assess the long term effects, if any, on core internals and pressure boundary due to the adverse chemistry conditions experienced.

Additionaly concerns expressed by NRC in the areas of analytical investigative techniques and the exact extent of the ISI program were resolved in a second meeting with the licensee on May 25, 1982 in Atlanta.