Georgia Power Company
40 Inverness Center Parkway
Post Office Box 1295
Birmingham, Alabama 35201
Telephone 205 877-7279

J. T. Beckham, Jr.
Vice President - Nuclear
Hatch Project

Georgia Power
the southern electric system

May 21, 1996

Docket No. 50-321 HL-5176

U.S. Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, D.C. 20555

Edwin I. Hatch Nuclear Plant - Unit 1
Licensee Event Report
Inadequate Procedure and Lack of Work
Coordination Result in Withdrawal of Inoperable Control Rod

Gentlemen:

In accordance with the requirements of 10 CFR 50.73(a)(2)(i), Georgia Power Company is submitting the enclosed Licensee Event Report (LER) concerning an inadequate procedure and lack of work coordination resulting in the withdrawal of an inoperable control rod.

Sincerely,

J. T. Beckham, Jr.

IFL/eb

Enclosure: LER 50-321/1996-006

cc: *Georgia Power Company*
Mr. H. L. Sumner, General Manager - Nuclear Plant
NORMS

U.S. Nuclear Regulatory Commission, Washington, D.C.
Mr. K. Jabbour, Licensing Project Manager - Hatch

U.S. Nuclear Regulatory Commission, Region II
Mr. S. D. Ebneter, Regional Administrator
Mr. B. L. Holbrook, Senior Resident Inspector - Hatch

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NRC FORM 366 (5-92) — U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

APPROVED OMB NO. 3150-0104
EXPIRES: 5/31/95

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Edwin I. Hatch Nuclear Plant - Unit 1	05000321	1 OF 5

TITLE (4)
Inadequate Procedure and Lack of Work Coordination Result in Withdrawal of Inoperable Control Rod

EVENT DATE (5) MONTH	DAY	YEAR	LER NUMBER (6) YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	REPORT DATE (7) MONTH	DAY	YEAR	OTHER FACILITIES INVOLVED (8) FACILITY NAME	DOCKET NUMBER(S)
04	21	96	96	006	00	05	21	96		05000
										05000

OPERATING MODE (9): 4
POWER LEVEL (10): 000

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR ?: (Check one or more of the following) (11)

	20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)
	20.405(a)(1)(i)		50.36(c)(1)		50.73(a)(2)(v)		73.71(c)
	20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		OTHER (Specify in Abstract below and in Text, NRC Form 366A)
	20.405(a)(1)(iii)	X	50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		
	20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)		
	20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (include area code)
Steven B. Tipps, Nuclear Safety and Compliance Manager, Hatch	912 367-7851

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS

SUPPLEMENTAL REPORT EXPECTED (14)

			EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X	NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-space typewritten lines) (16)

On 4/21/96 at 2105 EDT, Unit 1 was in the Cold Shutdown mode near the end of a refueling outage. At that time, a licensed plant operator was performing procedure 34SV-C11-004-1S, "Control Rod Timing," in conjunction with procedure 34GO-OPS-066-0S, "Single Control Rod Withdrawal in Shutdown or Refuel." These procedures were being performed in support of maintenance activities on the Control Rod Drive (CRD) system which involved exercising the control rod drives one at a time. During this activity, a control rod was withdrawn when its accumulator pressure was zero because the accumulator had been valved out of service. The rod was immediately reinserted. Later, at 2343 EDT, the same control rod was withdrawn and subsequently reinserted when its accumulator pressure was less than the 940 psig required by Unit 1 Technical Specifications 3.9.5. This event was caused by a procedure which was less than adequate. The operator interpreted procedure 34GO-OPS-066-0S as requiring that the accumulator be operable only if the control rod was to remain withdrawn for seven days (the surveillance interval). Insufficient coordination of work also contributed to this event in that two work activities were carried out on the same piece of equipment simultaneously. Procedure 34GO-OPS-066-0S will be revised before being used again. In addition, the Technical Specifications issues associated with this event will be explained as part of regularly scheduled license training by 8/5/96. The event will be discussed in Operations Department Beginning of Shift Training and Maintenance Department Tool Box meetings by 7/1/96.

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor
Energy Industry Identification System codes appear in the text as (EIIS Code XX).

DESCRIPTION OF EVENT

On 4/21/96, at 2105 EDT, Unit 1 was in the Cold Shutdown mode near the end of a refueling outage. At that time, a licensed plant operator was performing procedure 34SV-C11-004-1S, "Control Rod Timing," in conjunction with procedure 34GO-OPS-066-0S, "Single Control Rod Withdrawal in Shutdown or Refuel." He was exercising certain control rod drives (CRD, EIIS Code AA) in order to vent the hydraulic lines and purge the system of air, a routine, pre-startup activity for the CRD system. Procedure 34GO-OPS-066-0S requires that accumulator pressures in the CRD hydraulic control units (HCUs - devices which provide control pressure for the CRDs) be recorded prior to control rod movement. Personnel on a previous shift had recorded all the HCU pressures and left this information for the use of the oncoming shift. A licensed operator on the oncoming shift was assigned the duty of exercising specified CRDs for the purpose of purging them, as mentioned above. Each time a CRD was exercised, the HCU pressure provided by the previous shift was entered in the appropriate place in the procedure.

In conjunction with the operator exercising the CRDs, maintenance personnel were performing work on various HCUs to ensure the valves which control rod motion were functioning properly. This work involved positioning manual valves on HCU 38-27 which coincidentally had the effect of depressurizing the accumulator on this HCU. Only one HCU accumulator was being depressurized at a time. Also, as soon as the valves on the HCU were restored to normal configuration, the accumulator was repressurized automatically by CRD pump pressure, per design.

At 2105 EDT, the operator selected rod 38-27 and withdrew it. After withdrawing and reinserting the rod, he noticed that the HCU trouble light was illuminated on the full core display indicating possible low pressure in the accumulator. He contacted the maintenance personnel and asked them to read the local pressure gauge on this HCU. The pressure at that time was 0 psig because maintenance personnel had begun working on the HCU, with the result that the accumulator had been temporarily depressurized. Therefore, the operator recorded a pressure of 0 psig in the data package rather than using the pressure which the previous shift had recorded. With the HCU accumulator pressure at 0 psig, withdrawal of the control rod was contrary to Unit 1 Technical Specifications section 3.10.4.c.1 and section 3.9.5.

At 2343 EDT, the operator again selected rod 38-37 and withdrew it, then reinserted it. He again noticed that the HCU accumulator trouble light was illuminated, and phoned maintenance personnel to get the current pressure reading. At that time, the pressure was 900 psig and the operator recorded this in the procedure data package. With the HCU accumulator pressure at less than 940 psig, withdrawal of the control rod was contrary to Unit 1 Technical Specifications section 3.10.4.c.1 and section 3.9.5.

CAUSE OF EVENT

This event occurred because of a procedure which was less than adequate. Procedure 34GO-OPS-066-0S, Attachment 4, "Accumulator Pressure, RPIS Response, and Withdrawal Time," stated that "accumulator pressure must be ≥ 940 PSIG". However, a previous step in Attachment 2, "Shiftly Requirements for Control Rod Withdrawal in Shutdown," contained a step requiring an accumulator pressure check for any rod withdrawn for seven continuous days or more. The intent of this step was to ensure that Technical Specifications surveillance requirement 3.9.5.2 was satisfied. However, the step in Attachment 2 could also be interpreted to mean that accumulator pressure greater than 940 psig was required only if the control rod were to remain withdrawn for greater than seven days. On this basis, the operator concluded that a rod with no accumulator pressure was permitted to be exercised in Cold Shutdown for maintenance purposes provided it did not remain withdrawn for more than seven days. Thus, the operator moved the control rod without first checking the HCU trouble light because he mistakenly believed that it was permissible to exercise the rod for maintenance purposes regardless of the HCU accumulator pressure.

A contributing factor to this event was less than adequate coordination between maintenance and operations personnel. As described above, certain HCUs were being depressurized while, simultaneously, certain CRDs were being exercised. In this event, it happened that a CRD which was being exercised had just had its HCU depressurized without the prior knowledge of the operator.

REPORTABILITY ANALYSIS AND SAFETY ASSESSMENT

This event is reportable per 10 CFR 50.73 (a)(2)(i) because the plant entered a condition which is prohibited by the Technical Specifications. Specifically, a control rod was withdrawn twice when it was inoperable on account of low hydraulic control unit accumulator pressure, which is contrary to Unit 1 Technical Specifications section 3.10.4.c.1 and section 3.9.5.

The purpose of the CRD system is to control reactivity by postioning control rods in the core. The CRD system is comprised of 137 cruciform-shaped rods containing boron, a hydraulic actuator and hydraulic control unit for each rod, two 100 percent capacity CRD pumps, and the necessary piping and valves. The CRD system has two basic modes of operation. There is the normal drive function which uses CRD pump pressure to move one rod at a time in small increments or "notches," and the scram function in which all control rods are rapidly driven fully into core to shut down the reactor. The scram function works by positioning valves such that the under-piston area of the control rod drive is exposed to reactor pressure, and the over piston area is vented to a pipe known as the scram discharge volume which is at atmospheric pressure at the beginning of a scram. Thus, under normal circumstances, reactor pressure provides the motive force to scram a control rod. In addition, the hydraulic control unit for each control rod contains a high pressure accumulator which helps initiate the scram function and ensures the rod can be fully inserted on a scram signal even in situations where reactor pressure is low, such as when the plant is in the Cold Shutdown mode.

In this event, a control rod was withdrawn when its associated accumulator was depressurized, and was withdrawn again when its accumulator had low pressure (below 940 psig). On this particular occasion, the reactor mode switch was in the refuel position and the unit was considered to be in the Cold Shutdown condition per Unit 1 Technical Specifications section 3.10.4. With the hydraulic control unit accumulator at low or zero pressure, the scram function was not operable for this particular control rod. The control rod was reinserted using the normal drive function and CRD pump pressure.

With the reactor mode switch in the refuel position, control rod withdraw block circuitry allows one and only one control rod to be withdrawn at a time. Therefore, in accordance with plant design features, control rod 38-27 was the only control rod withdrawn from the core on both occasions. The reactor core is designed such that it will remain subcritical even with the highest worth rod fully withdrawn. All other rods were fully inserted into the core at the time of the event. Further, since the control rod block circuitry was operable at the time of the event, no other control rods could have been withdrawn from the core. Thus, the core remained subcritical at all times during this event. Should a design basis accident have occurred concurrently with this event resulting in an automatic reactor shutdown signal, the inoperable control rod would not have inserted automatically into the core. But because of the core design, no credible scenario can be postulated in which the reactor could have experienced an unplanned criticality due to the presence of a single withdrawn conrol rod. In addition, emergency operating procedures would have directed that the withdrawn control rod be driven into the core using normal CRD pressure.

NRC FORM 366A (5-92) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

APPROVED OMB NO. 3150-0104 EXPIRES: 5/31/95
ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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TEXT (If more space is required, use additional copies of NRC Form 366A)(17)

Based on this analysis, it is concluded that this event had no adverse impact on nuclear safety. Since the circumstances which led to this event exist only when the reactor mode switch is in the refuel position, this analysis does not apply to other operating conditions.

CORRECTIVE ACTIONS

1. Procedure 34GO-OPS-066-0S, "Single Control Rod Withdrawal in Shutdown or Refuel," has been revised to clarify the requirement that a rod cannot be withdrawn unless the HCU accumulator pressure is 940 psig or more.
2. The Technical Specifications issues associated with this event will be discussed in regularly scheduled training for licensed operators. This action will be completed by 8/5/96.
3. This event is being discussed in Operations Department Beginning of Shift Training and in Maintenance Department Tool Box meetings. This action will be completed by 7/1/96.

ADDITIONAL INFORMATION

1. Other Systems Affected: No systems other than those already mentioned in this report were affected by this event.
2. Failed Component Information: No failed components contributed to or resulted from this event.
3. Previous Similar Events: No events have been reported in the past two years in which improper manipulation of reactivity in the core resulted in the plant entering a condition prohibited by the Technical Specifications.