UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W., SUITE 2900
ATLANTA, GEORGIA 30323-0199

Report Nos.: 50-321/94-17 and 50-366/94-17

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: Edwin I. Hatch Nuclear Plant Units 1 and 2

Inspection Conducted: August 15 - September 2, 1994

Inspector: James H. Moorman, III 9.20.94
Date Signed

Accompanying Personnel: Richard Baldwin
Steve Cahill

Approved by: Lawrence L. Lawyer 9/21/94
Lawrence L. Lawyer, Chief
Operator Licensing Section
Operations Branch
Division of Reactor Safety
Date Signed

SUMMARY

Scope:

This routine, announced inspection was conducted in the area of the licensed operator requalification program during the period August 15 - September 2, 1994. The purpose of the inspection was to (1) verify that the licensee's requalification program for reactor operators (ROs) and senior reactor operators (SROs) ensures safe power plant operation by evaluating how well the individual operators and crews had mastered training objectives; and (2) assess the licensee's effectiveness in ensuring that the individuals who are licensed to operate the facility satisfy the conditions of their licenses as specified in 10 CFR 55.53.

Results:

The inspectors concluded that (1) the licensee's requalification program for ROs and SROs was adequate to ensure safe power plant operation; (2) the facility licensee was effective in ensuring that individuals who are licensed to operate the facility satisfy the conditions of their licenses.

The inspectors identified one strength for the training departments' ability to properly resolve complex licensed operator evaluation issues (Paragraph 2.b).

The inspectors identified one strength concerning the communications between the operations and training departments (Paragraph 2.b).

The inspectors identified one violation for failure to maintain records documenting remedial training and failure to document activities required by procedures related to remedial training (Paragraph 2.b).

The inspectors identified one violation for failure to maintain control of keys located in the Unit 2 EOP file cabinet (Paragraph 2.c).

The inspectors identified one inspector follow-up item concerning the limits to which emergency diesel generator frequency may lower before operator action is necessary to protect equipment on the emergency bus (Paragraph 2.c).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*C. Coggin, Training and Emergency Preparedness Manager
*O. Fraser, SAER Site Supervisor
*S. Grantham, Operations Training Supervisor
*T. Moore, Assistant General Manager - Operations
*K. Russell, Nuclear Specialist
*L. Sumner, Plant Hatch General Manager
*S. Tipps, Nuclear Safety and Compliance Manager
*P. Wells, Operations Manager

Other licensee employees contacted included training department instructors, operators, and office personnel.

NRC Personnel

B. Holbrook, Senior Resident Inspector
J. Canady, Resident Inspector
*E. Christnot, Resident Inspector

*Attended exit interview

2. Licensed Operator Requalification Program Evaluation (71001)

a. Summary

The NRC conducted a routine, announced inspection of the Edwin I. Hatch Nuclear Plant licensed operator requalification program during the period August 15 - September 2, 1994. The purpose of the inspection was to (1) verify that the licensee's requalification program for reactor operators (ROs) and senior reactor operators (SROs) ensures safe power plant operation by evaluating how well the individual operators and crews had mastered training objectives; and (2) assess the licensee's effectiveness in ensuring that the individuals who are licensed to operate the facility satisfy the conditions of their licenses as specified in 10 CFR 55.53. Based on a review of records and observation of examinations, those activities appeared to be satisfactorily conducted. The report identifies two strengths. The first strength involves the ability of the training department to properly resolve complex licensed operator evaluation issues. The second strength is the feedback process and communications between the training and operations department.

The report identifies two violations and one inspector follow-up item. The first violation resulted from a failure to maintain records documenting remedial training and failure to document activities required by procedures related to remedial training. Details of the first violation are provided in paragraph 2.b. The second violation resulted from failure to maintain control of keys located in the Unit 2 EOP file cabinet. Details of the second violation are provided in Paragraph 2.c. The inspector follow-up item concerns a lack of guidance on the limits to which emergency diesel generator frequency may lower prior to operators having to take actions to protect equipment on the emergency bus.

Inspectors observed examination activities and reviewed records of previously administered examinations. The inspectors concluded that the training department could effectively administer licensed operator requalification examinations and evaluate operator performance.

b. Program Results, Procedure Review, and Operator Training Records

The inspectors observed administration of requalification examinations and the documentation for those examinations. The inspectors also reviewed results from previous requalifiction examinations administered by the licensee. The examination documentation was generally thorough in documenting the observed range of operator performance. The training department evaluators aggressively identified areas of operator performance that needed improvement as well as performance that did not meet minimum standards. The training department evaluated to high standards despite the competing priorities involved in each evaluation. The inspectors considered the training department's ability to conservatively resolve complex operator performance evaluation issues and their willingness to provide additional training to operators whose performance exceeded minimum standards, but needed refinements, a strength.

Communication between the operations and training departments is an important part of training programs based on the systems approach to training. Training department personnel and operations department personnel interface in a variety of ways to ensure that the training department activities serve to enhance operators' performance and ensure safe and efficient operation of the plant. Operations department policies and needs for training are plainly stated and transmitted to the training department for inclusion in the program. Managers and supervisors in the operations department routinely observe or participate in training and evaluations. This is helpful to insure that operations department policies are promulgated and their implementation evaluated. During the two weeks that the inspectors were on site, the plant General Manager and the Assistant General Manager-Operations discussed their goals for operator performance with the operators in the requalification training segment. For all of the simulator evaluations, one person from the

operations department participated as an evaluator. The proactive nature of the interface between the operations department and the training department was noted as a strength. The inspectors reviewed procedures used to define the licensed operator requalification program. They were generally complete in their detail and description of the program and appeared to adequately define a program based on a systems approach to training.

The inspectors reviewed records required by 10 CFR 55.59(c)(5) that documented operator participation in the requalification program. The records included copies of written examinations, documentation of performance on operating tests, various correspondence related to the operators and documentation of any remedial training received. Of the 15 record packages reviewed, 3 did not contain documentation of remedial training that was performed or should have been performed to correct operator performance deficiencies identified during simulator examinations.

The records documenting remedial training typically contained a brief statement concerning the retraining. For example, if an operator was retrained using simulator scenarios, only the bank identification number of the scenario would appear on the record. The records did not contain any information concerning the specific weakness addressed by the remedial training or an identification of the root cause of the operators' performance deficiency. Simulator Examination Evaluators Guide, LR-EG 000104-00, dated August 8, 1994, provides guidelines for conducting simulator examinations and resolving performance deficiencies. When an operator performance deficiency is identified, Section 5.2.2 of this guide directs the exam team to attempt to identify the specific knowledge or ability deficiencies exhibited by the responsible operator. When determining the necessary remedial training for the performance deficiency, Section 6.2.4 of this guide provides this guidance: "The method of remediation should be selected based on the root cause of the problem and effectiveness of retraining." The records documenting remedial training did not contain statements or descriptions to indicate that the method of remediation was selected based on the root cause of the identified performance deficiency and effectiveness of retraining. The records documenting operators' performance during simulator examinations contained descriptions of identified performance deficiencies but did not address root cause or the basis for selection of remedial training. Discussions with training department personnel indicated that they performed a root cause analysis for each performance deficiency identified, and that this determination was inherent in the assignment of remedial training. Thus, they felt that documenting the nature of the remedial training was sufficient for the purpose of keeping records. 10 CFR 50, Appendix B, Criterion XVII, "Quality Assurance Records," states that sufficient records shall be maintained to furnish evidence of activities affecting quality. 10 CFR 55.59(c)(5) requires the facility licensee to maintain records

documenting the participation of each licensed operator in the requalification program. The failure to have records documenting remedial training for some operators and the failure of existing remedial training records to document activities required by training department procedures is identified as Violation 50-321/94-17-01 and 50-366/94-17-01.

c. Examination Administration

The inspectors observed administration of examinations during the inspection. Examinations observed included the annual cperating test and a written examination for the current segment. The operating test for each operator consisted of an examination on the plant reference simulator and a plant walkthrough examination using Job Performance Measures (JPMs). One of the JPMs used for the examination required entry into the Unit 2 Auxiliary Shutdown Panel (2C82-P001). While administering this JPM, a facility evaluator found that the key located in the Unit 2 EOP File cabinet designated to unlock cabinet 2C82-P001, Unit 2 Auxiliary Shutdown Panel, was not the proper type of key and would not unlock the panel. The evaluator initiated a deficiency card to start the corrective action process. During an NRC administered requalification examination given September 27 - October 6, 1993, the NRC identified that a key from the control room key locker designated to unlock an EOP locker would not fit the lock. This was identified as Inspector Follow-up Item 50-321/93-301-01, "Inability of operators to access the EOP lockers." In a letter to the NRC dated November 30, 1993, the licensee described their corrective actions. The corrective actions involved replacing locks on the EOP lockers and EOP file cabinets with master, breakaway locks which could be opened with a single type of key. The inspectors found the corrective action adequate to address the identified problem and the IFI was closed. As a result of this finding, the licensee had the opportunity to determine if other key control problems existed. Administrative Control Procedure 80AC-SEC-002-0S, "Key and Annunciated Door Control," Section 4.2.4, requires the Operations Department to "Control locks and keys to keylock switches and instrument cabinets." 10 CFR 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings requires that activities affecting quality be accomplished in accordance with procedures. Contrary to this, on August 30, 1994, the Unit 2 EOP file cabinet key designated to open the Unit 2 Auxiliary Shutdown Panel (2C82-P001) was not the correct type of key and would not open the panel door. The failure to control keys to the Unit 2 Auxiliary Shutdown Panel in accordance with plant procedures is identified as Violation 50-321/94-17-02 and 50-366/94-17-02.

The inspectors observed annual simulator examinations administered by licensee evaluators to one operating crew and one staff crew during the week of August 15, 1994, and one operating crew and one staff crew during the week of August 29, 1994. The crews consisted of a Shift Operating Supervisor (SOS) and a Shift Supervisor (SS) in the SRO

licensed positions. Three licensed ROs and a non-licensed shift technical advisor (STA) completed the crew. Each crew was evaluated on two different simulator scenarios. For some scenarios, crews had SROs in positions, such as STA, that did not require an SRO license. Three reactor operators manipulated the controls and the SROs directed shift operations. Each SRO rotated to a crew position that required an SRO license to allow an evaluation in at least one scenario in an SRO position. The operators were evaluated individually and as a team. The licensee used five evaluators to conduct the individual evaluations of the operators. The evaluator for the SS also evaluated the performance of the STA even though the STA position is not required to be filled by a licensed individual. An operations department representative observed the entire simulator examination process, and in conjunction with the Operations Training Manager, conducted the team portion of the evaluation. For all observed scenarios, the NRC inspectors determined that crew performance was satisfactory. However, the following aspects of crew performance need improvement. Crew members used imprecise local colloquialisms to convey equipment status to other crew members or plant operators outside of the control room. Shift Supervisor briefings to the crew concerning plant status and direction were inconsistent in their content and frequency.

The licensee evaluators' observations and analysis of operator performance were consistent with those of the NRC inspectors. However, some of the evaluation techniques used by the facility evaluators were not consistent with those in NUREG 1021 and were considered less than optimal. Immediately following a simulator scenario, the licensee evaluators would ask follow-up questions of the operator under evaluation. The evaluators did not meet to discuss the scenario events and resolve any performance issues prior to asking the follow-up questions of the operators. If the evaluators do not discuss the scenario amongst themselves before formulating their follow-up questions, crucial pieces of information concerning specific individual's knowledge and performance could be overlooked and not used in the evaluation. The evaluation forms for individual operator performance were completed by the training department evaluator assigned to evaluate the individual. The training department developed a crew competency evaluation guide similar to the evaluation guide of NUREG-1021. Crew competencies were evaluated by the Operations Training Manager and a representative from the operations department or plant management. The licensee evaluators determined that the crews passed the simulator portion of the examination.

The training department evaluators were satisfactory in their analytical skill in determining operator performance. During one scenario administered the first week, evaluators failed to note that an operator did not place the reactor mode switch in shutdown as required for the immediate actions for a reactor scram. The operator completed the missed action when directed by the SS.

The training department evaluators did not debrief the crew on their performance once the simulator exam was completed. Instead, one member of the training department briefed each operator individually.

One of the simulator scenarios used the first week required the operators to place in service a second reactor feedwater pump. This evolution lasted approximately 20 to 30 minutes. There were no crew critical tasks associated with this evolution and due to the slow progression of the evolution, no productive evaluation could be conducted of the five crew members not involved in the evolution. This proved to be an inefficient use of valuable evaluation time.

During the performance of one simulator scenario, training department evaluators noted that the crew did not observe frequency while loading the emergency diesel generator. The evaluators determined that the frequency decreased but did not go low enough to be of concern. When questioned by the inspectors, licensee evaluators could not provide to the inspectors, criteria for minimum frequency during diesel generator operation. The inspectors reviewed Procedure 34SO-R43-001-1S, "Diesel Generator Standby AC System", and Procedure 34AB-R43-001-2S, "Diesel Generator Recovery," to determine if the limits were documented. Neither one of these procedures contained the allowable frequency range for operation of the diesel generator. The allowable operating range of frequency is important to the operator since in an under-frequency situation operator action would be required to prevent damage to safety related equipment. The licensee attempted to get information concerning the frequency limits for diesel generator operation from the corporate engineering staff. This information could not be furnished to the inspectors at the time of the exit meeting. The evaluation of frequency limits for emergency diesel generator operation is identified as Inspector Follow-up Item 50-321/94-17-03 and 50-366/94-17-03.

The inspectors observed administration of the written Part A, Plant Proficiency and Part B, Limits and Controls examinations. The Part B examination was administered in the classroom used for training. Operators taking the examination were placed two to a table and shared the same set of reference material. This arrangement did not meet the guidance for spacing and reference material requirements found in NUREG 1021. During administration of one of the Part A examinations, a janitor who was not on the security agreement entered the simulator. The licensee subsequently locked the simulator to prevent further unauthorized entries during examinations.

d. Examination Development

The inspectors reviewed the licensee's requalification written and operating examinations by comparing them to guidelines provided in the licensee's procedures and NUREG-1021, "Operator Licensing Examiner

Standards," Revision 7. The inspectors found that the licensee-developed examinations were adequate, however certain areas for improvement were noted.

The inspectors compared scenarios administered during two weeks of the examination cycle with the simulator scenario review check list of NUREG-1021, ES 604, Form 604-1. Form 604-1 was used to determine if quantitative and qualitative criteria were met. The scenarios reviewed met the quantitative criteria for individual as well as scenario set requirements for total malfunctions. The malfunctions that preceded the major transient, resulted in simple technical specification determinations for the SROs and did not require significant or comprehensive operator actions. One of the four scenarios reviewed did not require the SROs to enter technical specifications prior to the major transient. This finding reflected a lower level of knowledge tested on this portion of the examination when compared to the criteria of NUREG-1021.

The inspectors reviewed the simulator scenario crew critical tasks against the guidelines ES-604, Attachment 1, "Critical Task Methodology." The inspectors determined that in some cases, crew critical task grading criteria was not objectively stated to ensure consistent evaluation of operator performance. Examiner Standard-604, Attachment 1 provides guidelines for establishment of measurable performance indicators so that examiners can objectively evaluate operator performance. One crew critical task that did not meet the guidelines of ES-604 is as follows: "During an ATWS with emergency depressurization required, Terminate AND Prevent Injection, with exception of boron, CRD and RCIC into the RPV" (Task # 201.001). This task was used to evaluate performance of a crew that was required "Terminate and Prevent Injection" into the core. During the scenario, the core spray pumps automatically started on low reactor water level and injected water into the core. The operators secured the pumps in a timely manner. The training department evaluators noted a change in position of the injection check valve disk indicating some flow into the core. However, the evaluators could not determine how much, if any, water was injected or if reactor power had been affected. Although the evaluators determined that this action was not detrimental to core safety, the limit for unsatisfactory performance was not defined by the critical task. The inspectors agreed with the licensees' evaluation of satisfactory operator performance of this task. Since the acceptance criteria for this critical task was not well defined, actual performance had to be evaluated on a case by case basis. One drawback to case by case evaluation is that the simulator was unable to monitor and plot plant parameters that may need to be known in order to make the proper determination. Also, an extra burden is placed on the evaluators to collect all information that may be relevant to ensure reliable and consistent evaluations.

The inspectors reviewed LR-SE-10000-00, "Critical Task Document," for guidance in selecting critical tasks for evaluation scenarios. This document is based upon "BWR Owner's Group Simulator Scenario Development Guidelines." This document is generic in nature; however, it does contain Hatch specific plant parameters. The inspectors determined that the generic critical tasks should be used as the basis when developing scenario critical tasks, but each critical task should be tailored to the events in the scenario to ensure reliability and consistency in the evaluations.

NRC inspectors reviewed the written examinations for the weeks of August 15, 1994 and August 29, 1994. These exams covered material for the current segment of requalification training and were not intended to be the biennial written examination required by 10 CFR 55. Although the examinations were found to be satisfactory, the inspectors noted that some questions did not conform to the guidelines of NUREG 0122 for question construction. Since the biennial written examinations are compiled from the same question bank, the inspectors reviewed the examinations with the same scrutiny as would be applied to the biennial exam and provide the following comments. The examination questions on the Part A, "Plant Proficiency Examination" did not encompass integrated plant operations as per the guidelines of NUREG-1021, ES-602. The questions were of single dimension in that they did not test system interactions using the conditions presented by the simulator. Some multiple choice question distractors were easily eliminated because they did not match the plant conditions presented by the simulator. One question involving the determination of injection sources to the core had two distractors that included CRD as an injection source. The simulator was set up with both of the CRD pumps not running. These two distractors can be easily eliminated by simply checking the status of the CRD pumps. Another question concerned resetting a scram signal. One of the distractors in this question stated that the MSIVs were in mid-position. The simulator was set up with the MSIVs fully open, allowing this distractor to be easily eliminated. Another question concerning operation of the HPCI system contained a distractor that was opposite the correct answer for another question on the examination. This presents a double jeopardy situation for the operators. Another question concerning heating sources to the suppression pool required the operators to determine if the SRVs were stuck open. The simulator was set up with plant pressure such that the test taker could not determine if the valves were stuck or responding normally.

The inspectors reviewed the Part B, "Limits and Controls," portion of the written examination to determine if it was written to the guidelines of NUREG-1021. The examination reviewed contained approximately 20 percent of questions on plant systems. One of the questions concerning emergency diesel generator pre-lube requirements was determined to be a look-up question.

The inspectors determined that individual examination questions were selected in accordance with the licensee's examination sample plan. The inspectors determined the written examinations adequately sampled the items stated in 10 CFR 55.41 and 10 CFR 55.43 and that the overlap of questions from examination to examination was acceptable.

No violations or deviations were identified

4. Exit Interview

At the conclusion of the site visit, the inspectors met with representatives of the plant staff listed in paragraph one to discuss the results of the inspection. The licensee did not identify as proprietary any material provided to, or reviewed by the inspectors. The inspectors further discussed in detail the inspection findings listed below. The licensee did not express any dissenting comments.

Item Number	Status	Description and Reference
VIO 321,366/94-17-01	Open	Failure to keep records documenting remedial training performed and failure to document activities required by training department procedures.
VIO 321,366/94-17-02	Open	Failure to maintain control of a key to a vital equipment panel.
IFI 321,366/94-17-03	Open	Operating limits for diesel generator frequency
IFI 321,366/93-301-01	Closed	Inability of operators to access EOP lockers (Paragraph 2.c)

APPENDIX

LIST OF PROCEDURES REVIEWED

NUMBER	REVISION	DATE	TITLE
30AC-OPS-014-OS	1	02/07/91	Control of Operator Aids
AG-MGR-54-0259N	0	07/08/92	Plant Communications
70AC-TRN-001-OS	3	09/13/93	Plant Training Program
AG-ADM-26-0190N	1	04/06/92	Training Records and Qualification System
AG-TRN-01-0685N	4	07/20/94	On-The-Job Training Requirements
AG-TRN-03-0785N	2	11/16/90	Evaluation of Training Programs
71TR-PQL-001-OS	4	09/01/93	Qualification, Certification and Evaluation of Instructors
71TR-TRN-001-OS	6	11/01/90	Maintenance of Training Records
72TR-TRN-001-OS	6	06/06/94	Operations Training Program
74TR-TRN-001-OS	6	08/02/93	Training Program Development Revision and Administration
75TR-TRN-001-OS	8	10/17/88	Emergency Preparedness Training
72TR-TRN-002-OS	6	05/26/93	License Requalification Training Programs
DI-TRN-19-0785N	6	07/12/93	Testing, Control, Administration and Documentation
DI-TRN-24-0885N	3	03/15/94	Simulator Documentation Requirements
DI-TRN-28-0286N	5	03/14/94	Review, Routing, and Incorporation of Event Reports, DCRS, Procedures
DI-TRN-34-1086N	4	04/01/94	Training Material Maintenance and Revision
DI-TRN-37-0787N		10/01/90	Simulator Configuration Control

APPENDIX

LIST OF PROCEDURES REVIEWED

NUMBER	REVISION	DATE	TITLE
LR-EG-00101-00	NA	08/08/94	License Annual Examination Evaluator Guide
LR-EG-00102-00	NA	08/08/94	License Requalification Biennial Written Examination Evaluator Guide
LR-EG-00103-00	NA	08/08/94	License Job Performance Evaluator Guide
LR-EG-00104-00	NA	08/08/94	Simulator Examination Evaluator Guide
31-RS-OPS-001-1S	1	04/09/92	Shutdown from Outside Control Room
31EO-EOP-109-2S	3	10/08/91	Alternate Boron Injection
80AC-SEC-002-0S	3	08/03/94	Key and Annunciated Door Control