

ENCLOSURE

INITIAL SALP REPORT

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U. S. NUCLEAR REGULATORY COMMISSION  
REGION 11

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SYSTEMATIC ASSESSMENT OF LICENSEE PERFORMANCE  
INSPECTION REPORT NUMBERS  
50-424/91-25 AND 50-425/91-25

GEORGIA POWER COMPANY

VOGTLE, UNITS 1 AND 2

OCTOBER 1, 1990 THROUGH SEPTEMBER 28, 1991

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## I. INTRODUCTION

The Systematic Assessment of Licensee Performance (SALP) program is an integrated NRC staff effort to collect available observations and data on a periodic basis and to evaluate licensee performance on the basis of this information. The program is supplemental to normal regulatory processes used to ensure compliance with NRC rules and regulations. It is intended to be sufficiently diagnostic to provide rational basis for allocation of NRC resources and to provide meaningful feedback to the licensee's management regarding the NRC's assessment of their facility's performance in each functional area.

An NRC SALP Board, composed of the staff members listed below, met on November 8, 1991, to review the observations and data on performance, and to assess licensee performance in accordance with the guidance in NRC Manual Chapter NRC-0516, "Systematic Assessment of Licensee Performance". The Board's findings and recommendations were forwarded to the NRC Regional Administrator for approval and issuance.

This report is the NRC's assessment of the licensee's safety performance at the Vogtle Units 1 and 2 for the period October 1, 1990 through September 28, 1991.

The SALP Board for Vogtle was composed of:

- E. W. Merschoff, Acting Director, Division of Reactor Projects (DRP), Region II (RII) (Chairperson)
- S. D. Rubin, Acting Deputy Director, Division of Reactor Safety, RII
- B. S. Mallett, Deputy Director, Division of Radiation Safety and Safeguards, RII
- A. R. Herdt, Chief, Reactor Projects Branch 3, DRP, RII
- G. C. Lainas, Assistant Director, Division of Reactor Projects-I/II, Office of Nuclear Reactor Regulation (NRR)
- D. S. Hood, Project Manager, Project Directorate II-3, NRR
- B. R. Bonser, Senior Resident Inspector, Vogtle, DRP, RII

Attendees at SALP Board Meeting:

- P. H. Skinner, Chief, Project Section 3B, DRP, RII
- S. E. Sparks, Project Engineer, Project Section 3B, DRP, RII
- R. D. Starkey, Resident Inspector, Vogtle, DRP, RII
- G. R. Wiseman, Reactor Engineer, Technical Support Staff, DRP, RII

## II. SUMMARY OF RESULTS

During this assessment period, Vogtle was operated in a safe and conservative manner. Both units experienced a reduction in reactor trips from the previous assessment period. Operator performance during plant transients and major evolutions continued to be a strength. Management

decisions reflected conservatism and a commitment to plant safety and reliability. However, there were several instances of inadequate procedure implementation, personnel error, and inattention to detail.

Performance in the area of Radiological Controls continued to be effective. The staff was well qualified and had the expertise necessary to implement effective programs. Management maintained a strong active commitment to the As Low As Reasonably Achievable (ALARA) program.

Performance of Maintenance/Surveillance was acceptable. Overall plant performance related to maintenance, and management support of maintenance, were satisfactory for both program and program implementation. Some discrepancies during maintenance were noted in controlling lifted wires and temporary jumpers. Performance in the area of surveillance has improved, however, several events were identified involving inadequate procedures and personnel errors in procedural adherence.

The licensee maintained the Emergency Preparedness elements needed to implement the Emergency Plan and procedures in response to emergency events. Licensee management completed corrective actions this assessment period for previously identified Emergency Preparedness program deficiencies. Weaknesses were identified in the area of corrective actions and emergency classification. Performance during the annual emergency preparedness exercise and unannounced drills was acceptable, although some deficiencies were identified.

The licensee's corrective actions to address the breakdown in management oversight in the control of safeguards information were extensive, detailed, and have been effective to date. At the end of this SALP period, the licensee finalized many, but not all, program upgrades of the camera assessment capabilities at the protected area perimeter. This was considered a significant improvement to a long standing weak area of the security program. Security force management and shift staffing levels were maintained at an acceptable level.

Overall, Engineering and Technical Support have been satisfactory during this assessment period. Communication between other plant departments and corporate technical support was good. The licensee has increased the effectiveness of configuration control, and routinely considered risks associated with plant evolutions as part of outage management. The quality, technical content, and level of detail of plant modifications and other technical support activities was good, and has contributed to plant safety. However, several engineering deficiencies were noted during this assessment period.

Safety Assessment/Quality Verification were satisfactorily implemented this assessment period. Management has continued to support and improve plant organizations and programs which identify and assess problems, and provide a mechanism for their resolution.

### Overview

Performance ratings assigned for the last rating period and the current period are shown below.

<u>Functional Area</u>	<u>Rating Last Period</u> <u>10/1/89 - 9/30/90</u>	<u>Rating This Period</u> <u>10/1/90 - 9/28/91</u>
Plant Operations	2	2
Radiological Controls	1	1
Maintenance/Surveillance	2	2
Emergency Preparedness	3 (Improving)	2
Security and Safeguards	3	2 (Improving)
Engineering/Technical Support	2	2 (Improving)
Safety Assessment/ Quality Verification	2	2

### III. CRITERIA

The evaluation criteria which were used to assess each functional area are described in detail in NRC Manual Chapter MC-0516, which can be found in the Public Document Room files. Therefore, these criteria are not repeated here, but will be presented in detail at the public meeting to be held with licensee management. However, the NRC is not limited to these criteria and others may have been used, where appropriate.

### IV. PERFORMANCE ANALYSIS

#### A. Plant Operations

##### 1. Analysis

This functional area addressed the control and performance of activities directly related to operating the facility (including fire protection).

During the previous assessment period, numerous instances were identified of activities being pursued without interactive communications between cognizant groups, as well as inattention to detail. In addition, plant configurations resulted in situations which aggravated plant responses and allowed engineering safety features to be challenged. During this assessment period, improvements have been made in these areas. The plant was operated in a safe and conservative manner. Unit 1 experienced one unplanned reactor trip and no automatic trips, as compared to four unplanned trips in the previous assessment period. A manual trip was initiated due to a transformer failure, causing a loss of speed control on a main feedwater pump. Unit 2 experienced three automatic reactor trips, as compared to seven in the last assessment period. All three

trips were directly related to equipment problems. The Unit 2 trips included a loss of main feedwater pump speed control circuitry, a random failure of a protection loop resulting in the 2 out of 4 logic required for a reactor trip, and a turbine trip resulting in a reactor trip due to a main generator trip on loss of field.

Several times during this assessment period, plant management shut the plant down to perform reliability related maintenance. In December 1990, with increasing unidentified leakage, but below Technical Specification (TS) limits, Unit 1 was shutdown to find and repair the leak; in March 1991, Unit 2 was shutdown to repair a steam generator (secondary side) handhole leak; in April 1991, Unit 2 was shutdown twice, once to correct a turbine vibration problem and the second time to repair a reactor coolant pump oil leak. These examples reflect management decisions of conservatism and a commitment to plant safety and reliability.

Several management changes have occurred this assessment period which have had a positive effect on the supervision of Operations personnel. Examples included the active involvement of plant management in the resolution of significant operational issues through participation in morning meetings and control room shift turnover activities. Management's understanding and response to technical issues from a safety perspective was apparent. Management visibility, accessibility, and a commitment to maintain and improve experience on shift was observed.

Operators were professional and displayed good control room demeanor. The operations staff was well qualified. The attrition rate of licensed operators noted in the past has been significantly reduced. With the lower attrition rate and the licensing of more operators, an additional Reactor Operator (RO) was added to each shift. A fourth licensed Senior Reactor Operator (SRO) was added to each shift to provide greater flexibility and increased field supervision. Although an instance was noted of inadequate briefing on an evolution, shift crew briefings and the shift turnover process have improved.

As observed in the last assessment period, operator performance during plant transients and major evolutions has continued to be a strength. Two equipment failures which could have resulted in unnecessary reactor trips were averted by appropriate operator response. One event involved a main feedwater pump shaft shear; the other event involved loss of both heater drain pumps which could have resulted in loss of main feedwater.

Notwithstanding the generally improving performance of Operations, there were several instances of inadequate procedure implementation, personnel error, and inattention to detail during normal operational activities. Examples included a lack of control board awareness by an RO during a safety injection system fill and vent operation; hanging and independently verifying a clearance on a Nuclear Service Cooling Water (NSCW) pump on the wrong unit; unplanned start of an emergency diesel generator (EDG); failure to dilute a liquid effluent release; failure to ensure proper safety injection system alignment prior to running a surveillance test; and failure to verify closure of an NSCW pump discharge valve during a functional test. Management has taken corrective actions to address procedural compliance deficiencies.

Appearance and preservation of the plant has improved over this period through a broad painting and preservation program. Improvements in the control of valve leakage were noted. However, several relatively inaccessible valve rooms had not received the same level of attention. The labeling program has also improved through the use of temporary label tags. Replacement of Unit 1 plastic and temporary tags with metal tags is scheduled for 1992. During NRC system walkdowns, few labeling discrepancies were noted.

Operation's interface with other site departments has also improved. This has been accomplished, in part, by the rotation of managers with operations experience to other departments. Other Operations personnel have also been rotated to other departments.

Communication between the NRC and licensee management has been an area of concern. This area has continued to improve, as evidenced by licensee management interface with the resident inspectors on potential regulatory issues and maintenance problems.

The fire protection program was satisfactorily implemented. The use of a Fire Protection Technician assigned to each operational shift was a program strength. This relieved control room operators of fire protection duties. Comprehensive procedures have been developed to implement the fire protection program. The fire brigade was well trained and equipped. The IS required fire protection program audits performed by the licensee were comprehensive and thorough. Surveillance of the fire protection system was acceptable, although some tests were being performed without calibrated instruments. Maintenance of the fire protection features and systems was adequate, however, adequate

compensatory measures were not always taken for degraded conditions. In addition, an unsealed fire wall penetration was identified in two fire areas. Drill performance was satisfactory, however, one poor performance was observed.

Four violations were cited.

2. Performance Rating

Category: 2

3. Recommendations

None

B. Radiological Controls

1. Analysis

This functional area addressed those activities directly related to radiological controls and primary/secondary chemistry control, reviewed during routine inspections conducted throughout this assessment period.

The licensee's radiation protection staff was well qualified and had the expertise necessary to implement effective programs. Staffing levels, including Health Physics (HP), Radwaste, Chemistry, and Transportation staffs, were proper to support routine operations.

The licensee's ALARA program for maintaining occupational exposure at low levels was effective, mainly due to aggressive control of source term. For example, during approach to shutdown for refueling, the licensee used low concentrations of lithium chemistry with refueling level concentrations of boron in concert with peroxide addition and fresh ion-exchange beds to maximize Reactor Coolant System (RCS) cleanup and reduce ex-core radiation fields. During this assessment period, the licensee's total collective radiation dose for the plant (Unit 1 and Unit 2) was approximately 267 person-rem, as compared to 345 person-rem for the plant during the previous assessment period. The goal for this period was 284 person-rem. Licensee management established aggressive collective dose goals and maintained a continuous awareness of these goals through active participation on the ALARA Committee and the use of performance charts for key radiation parameters.

The licensee's goal for personnel contamination events (PCE's) during this period was 186 PCEs. The licensee experienced 44 PCEs during the assessment period as compared to 123 PCEs during the previous assessment period.

Management support for HP planning was demonstrated during the Unit 1 Resistance Temperature Detector (RTD) bypass manifold removal and replacement project. Visits to other facilities were conducted to obtain lessons learned, ALARA planning, mock-up training, job preparation, and use of special equipment.

The licensee remodeled two former construction warehouses to accommodate the possibility of storing Dry Active Waste (DAW) onsite. This will provide an estimated DAW storage capacity of approximately five years.

During this assessment period, the average area of the plant controlled as contaminated was 4500 square feet, which is less than one percent of the total plant area. The continued success of the licensee in maintaining a small percentage of the plant controlled as contaminated demonstrated an aggressive HP program supported by other organizations and plant management. The HP group routinely participated in daily planning and scheduling meetings.

The licensee's program for monitoring and controlling liquid and gaseous radioactive effluents was effectively implemented. The total annual dose from the liquid and gaseous effluents released during 1990 was a small fraction of the allowable limits.

During the assessment period, the licensee upgraded the radwaste treatment systems by installing a microfiltration system for liquid radwaste. The use of this system reduced the Co-60 activity in the liquid effluents. The Semiannual Radioactive Effluent Release Reports for 1990 did not identify any effluent monitors as being inoperable for more than 30 days, other than the Unit 2 Steam Generator Blowdown effluent monitor. This monitor was isolated for 31 days early in the assessment period. During that period some of the contents of steam generators #3 and #4 were released without having been sampled for radioactivity content. A second unplanned release was a result of a valve being left open after calibration of the Unit 2 waste gas hydrogen monitor. The activity in the Unit 2 vent during that period was below the detectable levels of the vent radiation monitors. A third unplanned release occurred when rain water entered the Refueling Water Storage Tank valve room and became contaminated. No dose or release limits were exceeded as a result of the above three releases.

The reactor coolant chemistry and the Dose Equivalent Iodine (DEI) were maintained well within their TS limits for steady state conditions. Dissolved oxygen, chloride, and fluoride were maintained to less than 10% of TS limits and the DEI was typically less than 0.1% of its TS limit. The secondary water chemistry was maintained within the guidelines recommended by the Steam Generators Owners' Group.

The licensee's environmental monitoring program was effectively implemented. The program results for 1990 indicated that there was no adverse radiological impact to the environment resulting from plant operations. The results of the licensee's participation in the Environmental Protection Agency's (EPA's) interlaboratory crosscheck program indicated that the licensee had maintained a strong quality assurance program for the analysis of environmental samples. There was generally good agreement between the licensee's analytical results and the EPA's. The licensee's evaluation of the crosscheck program data provided the basis for establishing a new efficiency curve for gross beta analysis of water samples and for procedural improvements in gamma spectrographic analysis of water samples. The licensee's capability to accurately detect and identify gamma emitting radionuclides and to quantify their concentration was demonstrated by 100% agreement with the NRC on comparative measurements.

The licensee continued to implement a program to improve overall Post Accident Sampling (PAS) system reliability. The overall reliability has improved, although the system still experienced problems. The licensee has continued maintenance activities to improve reliability.

Audits conducted by the Safety Audit and Engineering Review (SAER) to evaluate HP, chemistry, and environmental monitoring were thorough and well-planned. Corrective actions were completed in a timely manner.

No violations were cited.

2. Performance Rating

Category: 1

3. Recommendations

None

C. Maintenance/Surveillance

1. Analysis

This functional area addressed those activities related to equipment condition, maintenance, surveillance performance, and equipment testing. In addition to the routine inspections in this area, a Maintenance Team Inspection (MTI) was conducted during the assessment period.

The performance of maintenance continued to be acceptable. Maintenance activities were not direct contributors to reactor trips during this assessment period which was an improvement from the four reactor trips attributed to maintenance activities during the previous assessment period. Equipment condition however, did contribute to plant trips and operational occurrences. A failed transformer, a loss of speed control on a main feedwater pump, a random failure of a bistable, and a loss of main generator field resulted in plant trips. In addition, a main feedwater pump shaft shear and heater drain pump problems also affected plant operation. The ratio of preventive maintenance to corrective maintenance was approximately 40/60, as compared to the licensee's goal of 60/40. The licensee made steady improvement in this area.

Overall plant performance related to maintenance, and management support of maintenance, was satisfactory for both program and program implementation. A weakness was identified for issuing maintenance procedures without formal validation and verification. The licensee initiated corrective action to resolve this weakness.

Early in the assessment period, a weakness was identified during a review of maintenance program implementation involving a high threshold for the identification of poor material condition and housekeeping problems. Examples include the observation of electrical panels containing debris, unrestrained equipment near vital equipment, and fire doors with broken latching hardware. Instances were noted where plant personnel did not clearly understand the requirements for safe handling of rigging equipment, including the use of frayed slings and workers conducting activities under suspended loads. Later in the assessment period, the licensee improved the above areas.

Weaknesses in the control of hot shop and hot tool room facilities were also noted. The licensee has taken corrective actions to improve the control of these facilities. This initiative was not fully implemented at the close of this assessment period.

Staffing and training of the maintenance department was sufficient to accomplish maintenance activities. Management was actively involved in ensuring the proper experience level and qualifications when maintenance activities were performed. The Mechanical/Electrical maintenance shop facilities and Instrumentation and Controls (I&C) facilities were well designed with individual work stations and supervisor access. The electrical laboratory simulators (breakers and motor control centers) for training of operators and maintenance workers were

excellent. Shift schedules were rearranged for the maintenance department during this assessment period to provide more effective support. Mechanics, electricians, I&C technicians and foremen were placed on the same shift rotation as operations personnel.

Licensee management was actively involved in the scheduling and planning of maintenance activities. Maintenance scheduling is train-related to minimize the common mode failure risk. Planning of maintenance activities was discussed by management in the plan of the day meeting, with proper emphasis given to safety related and trip sensitive components. The various data bases used in the scheduling and planning of maintenance activities provides easy access to technical information on plant components.

The onsite Maintenance Engineering group provided effective support for maintenance activities including component troubleshooting, Code and welding technical assistance, motor operated valve performance analysis, containment surveillances, and predictive and preventive maintenance. Corporate maintenance provided assistance needed for contractor and vendor interfaces.

Predictive maintenance programs continued to be utilized by the licensee. The licensee utilized a corporate thermography surveys group semiannually and maintained thermographic equipment onsite for items that need immediate attention. Vibrational analysis and lube oil analysis programs remained effective. Extensive corporate support was noted in evaluation of excessive heater drain pump vibrations.

Discrepancies during maintenance in controlling lifted wires and temporary jumpers were noted. An example was identified where incorrectly reconnected wires were not detected by the electrician, independent verifier, and quality control inspector. This resulted in rendering a Unit 1 NSCW pump inoperable. Another example occurred when electricians left the work area without installing lifted wire tags during main steam isolation valve maintenance. The licensee took effective actions to revise procedures to include additional requirements or clarify existing guidance for lifted wires and temporary jumpers.

Performance in the area of surveillance has improved, however, several events were identified during this assessment period involving inadequate procedures or personnel errors in procedural adherence. The number of missed Ts required surveillances has decreased from the previous assessment period.

Examples identified during this assessment period included surveillances associated with a special condition rod position deviation monitor surveillance, seismic monitoring instrument surveillances, and an EDG fuel oil analysis. Also, several Final Safety Analysis Report (FSAR) commitment surveillances (non-TS required) were missed during this assessment period. Implementation of a surveillance tracking program was very good for routine surveillances, although some special condition surveillances were missed. Surveillance tasks were tracked using a computer database. The licensee prepared a Weekly Schedule Highlights printout, which was used for scheduling and discussion at the daily plan of the day meeting. In addition, the licensee prepared a Surveillance Alert List, a Surveillance Testing Management Attention List and an Unsat/Inop Surveillance list. These lists were reviewed by management daily and used to track upcoming surveillance due dates or actions compensating for tests that could not be completed. The lists were also available in the control room.

Instances were also identified involving failure to follow surveillance procedures. Steps specifying the removal of temporary jumpers were performed out of sequence, resulting in several Engineered Safety Features (ESF) components inadvertently changing position. Steps performed out of sequence also resulted in the inadvertent actuation of a turbine driven auxiliary feedwater pump. In addition, a main steam line radiation monitor alarm was disabled when a chemistry technician failed to follow procedure. Inadequacies in surveillance procedures were noted during the performance of surveillance tests. Examples included entry into TS 3.0.3 action requirements briefly when performing a centrifugal charging pump inservice test, and a procedural inadequacy which resulted in incorrect verification of a Unit 1 boration flow path due to the omission of a manual valve.

Inservice Inspection nondestructive examinations were conducted adequately, with adequate documentation of examination results, personnel qualifications and material certifications.

Six violations and one deviation were cited.

## 2. Performance Rating

Category: 2

## 3. Recommendations

The Board noted that although improvements have been made in assuring that surveillances are properly performed as required, TS and FSAR required surveillances continue to be missed. Management attention to this area is appropriate.

## D. Emergency Preparedness

### 1. Analysis

This functional area addressed activities related to the implementation of the Emergency Plan and procedures, support and training of licensee and offsite emergency response organizations, and licensee performance and interaction with offsite support organizations during emergency exercises and actual events.

The licensee maintained the basic emergency preparedness elements needed to identify promptly, classify correctly, staff adequately, and implement effectively the elements of the Emergency Plan and its respective implementing procedures in response to emergency events.

Licensee management undertook and completed corrective actions this assessment period for previously identified Emergency Preparedness program deficiencies in emergency plan procedural controls and in communication procedures, training, and equipment. However, there was a violation and repeat violation identified during the assessment period that indicated a lack of sufficient attention by licensee management to undertake and verify corrective actions were completed properly. The violations concerned the operability of the Emergency Operations Facility (EOF) building ventilation system. The licensee initiated corrective actions that were completed during the assessment period.

During the annual emergency preparedness exercise, the licensee demonstrated a capability to implement the emergency plan and implementing procedures. The scenario was sufficiently detailed and challenging to exercise the response organizations and included a radiological medical emergency, a fire, and communications drill. The emergency response facilities were activated fully within the required activation times. The licensee demonstrated the ability to identify emergency conditions and to make correct and timely classifications and notifications in accordance with licensee procedures. The licensee took appropriate measures to mitigate the adverse consequences of degrading plant conditions and recommended appropriate protective actions for the public. The exercise critiques were thorough and substantive findings were documented for review and followup action. Management representatives maintained good command and control of field monitoring teams, which were effectively directed and controlled.

During this exercise, one weakness was identified for failure to demonstrate adequate radioactive contamination control and initial first aid for a simulated injured worker. Observed deficiencies included: poor injury assessment; poor initial first aid; inappropriate injured personnel handling and transport procedures; and radio communication failure.

Early in the assessment period, the licensee was unable to fully demonstrate timely staffing and activation of emergency response facilities during off-hours per emergency plan commitments. The licensee took measures to correct the problem by prioritization of the notification list, additional training, and reassignment of some personnel within the response organization.

During August 1991, the licensee conducted an unannounced after hours drill intended to demonstrate the ability to recall off-duty personnel, to activate emergency response facilities after normal working hours, to deploy field monitoring teams at night, and to make timely off-site notifications. The overall results of the drill were successful. Sufficient personnel were recalled or were available on shift to activate or place on standby the emergency response facilities within approximately one hour of initial notification of personnel. Also during the assessment period another drill was initiated during which the onsite EOF was evacuated and personnel relocated to and activated the backup EOF facility in Waynesboro, GA. The transition to the backup EOF was conducted effectively. Except as noted above, the licensee's performance during the exercises effectively demonstrated the ability to provide for the radiological safety of onsite personnel as well as the public.

Late in the assessment period, some licensee health physics staff in the emergency response organization were found to be insufficiently trained to use field team radiological data for making proper protective action recommendations to the Emergency Director. Additional training of some response personnel who may be called upon to utilize field data as inputs to manual dose calculations in developing protective action recommendations appeared warranted.

Another issue identified late in the assessment period involved an inconsistency between the Emergency plan and its implementing procedures in the area of emergency classification. The inconsistency involved classifying an event based only on "current plant conditions" versus "events in progress or which have occurred" consistent with the guidance of NUREG-0654.

In response to offsite communications problems identified during the Site Area Emergency on March 20, 1990, the licensee completed during this assessment period extensive communications upgrades both with respect to procedures and equipment.

The licensee declared a notification of unusual event during the assessment period when a tornado was sighted in the owner controlled area of the plant on May 29, 1991. The event classification was prompt and correct, and offsite authorities were notified within requirements.

Three violations were cited.

2. Performance Rating

Category: 2

3. Recommendations

None

E. Security and Safeguards

1. Analysis

This functional area addressed the adequacy of the security protection provided for the station's vital systems and equipment. The scope of this assessment included all licensee activities associated with access control, physical barriers, detection and assessment, armed response, alarm stations, power supply, communications, and compensatory measures for degraded security systems and equipment. The licensee's Fitness For Duty program was also inspected.

Early in the assessment period, the licensee was issued a civil penalty (\$50,000) due to a Severity Level III violation for breakdown in management oversight in the control of safeguards information. The licensee's corrective measures, directed by a multi-disciplined Task Force, were extensive and detailed. Measures included limiting the number of individuals authorized access to safeguards information, and tighter controls over the reproduction and distribution of such documents. These measures have been effective to date. Personnel from site and corporate who were responsible for the protection of safeguards information received aggressive retraining which appeared to have corrected numerous personnel errors.

In the previous SALP period, a Regulatory Effectiveness Review (RER) identified two safeguards inadequacies and four safeguards concerns in the security program. Several strengths in the security program were also identified. Licensee initiatives correcting RER concerns were found to be adequate. For example,

the licensee is now conducting monthly contingency drills, including participation in the operations and emergency departments' drills.

The licensee has an Alarm Station Simulator which allows thorough training of alarm station operators. In addition, the simulator allows for planned maintenance work to be functionally tested before the actual equipment is taken out of service, thus reducing maintenance down time of the system.

Security force management and shift staffing levels were maintained at an acceptable level. The new security manager has successfully completed his transition into his new responsibilities. Training of officials has been effective and is reflected in their alertness and knowledge of duties.

At the end of this SALP period, the licensee finalized many program upgrades of assessment capabilities at the protected area perimeter. This was considered a significant improvement.

Licensee event reports and safeguards Event Logs for the first and second quarters of 1991 reflected a continuing decline in the number of safeguards events. Specifically, unsecured vital area doors were reduced from 30 in the first quarter to 21 during the second quarter. There was an ongoing effort by the licensee to track and trend the discovery of unsecured vital area doors with escalating management attention and application of disciplinary measures.

In an attempt to better manage the security program, the Security Manager uses an Information Management System which provides accountability on numerous outstanding action items. This ensures that responsibility and authority have been delegated to supervisors regarding regulatory issues, equipment repair and upgrade, and personnel related issues. As an example, several vital area doors experiencing heavy traffic have been equipped with significantly improved locking devices which ensure relocking of the portals.

The licensee's Fitness for Duty program was found to be effective in maintaining a drug free workplace and denying access to those who failed to meet high Fitness for Duty standards. Strengths were noted in training, staff professionalism, and the facilities used for chemical testing.

A strength was also identified in the licensee's security program for the continued coordination among site, Corporate,

and the NRC regarding Plan revisions, equipment upgrades, and facility renovations.

The licensee has continued improvements in areas such as; renovation of alarm multiplexer cabinets to allow for easier maintenance, continued upgrade of the camera and lighting systems, and remodelling of the plant entry security building to enhance shift changes and search equipment.

Three violations were cited.

2. Performance Rating

Category: 2

Trend: Improving

3. Recommendations

None

F. Engineering/Technical Support

1. Analysis

This functional area addressed those activities associated with engineering and technical support, including activities associated with design of plant modifications, engineering, and technical support for operations and operator training.

Overall, engineering and technical support have been satisfactory during this assessment period. An active role by the Engineering Department in plant operational day-to-day activities has resulted in effective communication and technical support between other departments. A cooperative working attitude was evident during plant management meetings. The system engineers were well trained and experienced, and actively involved in plant activities. However, the workload for system engineers was noted to be heavy. Technical communications between engineering, maintenance, operations, and other departments were observed to be better than the last assessment period, and have continued to improve. This was observed by routine interaction on maintenance problems, operability and reportability issues, and other communications during routine meetings.

The Southern Nuclear Company (SNC) corporate staff provides assistance with licensing, engineering, maintenance, environmental issues, nuclear fuel, and inspection and testing services. Southern Company Services and Bechtel are used by SNC for most of the engineering work that supports the Vogtle project. The expertise and support of SNC is comprehensive and provides a responsive off-site corporate support organization. The communication and working relationship between on-site and off-site engineering groups was observed to be good.

The quality of engineering responses to Requests for Engineering Reviews has improved in thoroughness and detail. Licensee management has also improved the timeliness of responses.

Deficiencies with the legibility of critical drawings were identified in the previous two assessment periods. Long term corrective action was accomplished through the acquisition of a Computer Aided Drafting system. All drawings are now done by this system, which produces a high quality, legible drawing. A weakness in the distribution and licensee audits of control room drawings was identified last assessment period and early in this period. The licensee has resolved these problems. Monthly licensee audits of Control Room drawings has identified a decreasing number of deficiencies of minor significance.

The licensee has improved the effectiveness of configuration control. Ongoing activities to improve configuration control included a reduction in the number of outstanding temporary modifications, preparation of a book for the control room describing open design changes, and revised procedures for lifted leads and temporary jumpers. These actions, in conjunction with the fuse data base, electrical load list, and other programs should enhance configuration control.

The licensee implemented a conservative Shutdown Risk Management plan to be used during the third refueling outage of Unit 1. Outage management was identified as a shortcoming in the previous assessment period. The plan included maintaining three out of four onsite and offsite power sources available when fuel is in the reactor vessel. Both EDGs remained operable until Mode 5 entry. Both residual heat removal pumps were available while fuel was in the reactor vessel, and although the Reactor Coolant System was at reduced inventory it was not drained to midloop while fuel was in the reactor vessel. Steam generator eddy current testing was not scheduled until the vessel was defueled. In addition, the licensee routinely considered risks associated with plant evolutions as part of outage management.

The quality, technical content, and level of detail for plant modifications and other technical support activities was good, and has contributed to plant safety. A modification to the steam generator narrow range level indication system resulted in an expanded band of level indication, which allowed additional operating margin. This additional margin enabled Unit 2 to withstand a main feed pump trip from 100% power without sustaining a reactor trip. A similar modification is being made on Unit 1. The installation of a radwaste microfiltration system increased liquid radwaste processing capacity, and will lower the existing offsite release quantities. Reactor Engineering recently made enhancements to the method of calculating estimated critical condition and shutdown margin using a computer program which provides a more accurate estimate than the manual calculation method.

Apart from the overall satisfactory performance, several engineering deficiencies were noted during this assessment period. Examples include failure to include Independent Verification steps in engineering department TS surveillances involving lifting safety related wires, and failure to include static head correction in pressure transmitter calibration procedures. In addition, the licensee failed to follow procedures for deviating from an approved 10 CFR 50.59 safety evaluation for a design change.

The operator training program has continued to be effective, as demonstrated by the results of Initial, Requalification, and Generic Fundamentals examinations. Initial examinations were given to 11 RO candidates and one SRO candidate, with 11 of 12 passing. One generic weakness noted was the inability of RO candidates to properly complete an Emergency Notification Procedure checklist. The requalification examinations resulted in 14 of 15 candidates passing. The Generic Fundamentals examinations resulted in 15 of 16 candidates passing. The licensee's simulator is certified in accordance with the American National Standards Institute 3.5.

Two violations were cited.

2. Performance Rating

Category: 2

Trend: Improving

3. Recommendations

None

## G. Safety Assessment/Quality Verification

### 1. Analysis

This functional area addressed the licensee implementation of safety policies, activities related to licensee amendments, exemptions and relief requests, responses to Generic Letters, Bulletins, Information Notices, resolution of safety issues (10 CFR 50.59 reviews), safety review committee activities, and the use of feedback from self-assessment programs and activities. It included the effectiveness of the licensee's quality verification function in identifying and correcting substandard or anomalous performance, in identifying precursors of potential problems, and in monitoring the overall performance of the plant.

Management involvement was evident in the handling of licensing actions, NRC staff requests, and licensee commitments. Management was usually well aware of the status and details of such items, whether completed or pending, and assured that commitments were completed in a timely manner.

Management generally kept the NRC informed of its ongoing and planned activities affecting matters under active NRC review. An exception occurred when the licensee filed corrections to its Emergency Core Cooling System analyses during final phases of the NRC's review of the associated amendment request to use VANTAGE-5 reload fuel.

The licensee requested meetings when appropriate to inform the NRC of appropriate developments, such as the transition of the SNC organization. The licensee was well prepared during meetings with the NRC. Periodic "interface" meetings were effectively used to keep NRC informed of progress on licensing actions and of the licensee's various initiatives. The licensee also provided ample technical support for its positions during an NRR site audit regarding bypassing the high jacket water temperature trip for the EDGs. This contributed to timely resolution of technical concerns on this issue.

The licensee's proposals and responses to the NRC were generally clear, timely, and technically sound. The licensee carefully assessed the impact of Generic Letters and Bulletins upon the plant and provided appropriate responses. However, NRC approval of the licensee's response to Generic Letter 90-03 was delayed because the licensee's exception to one of the requirements was not clearly explained and required further information. In addition, a request to discontinue engineering reviews of structural tilt for large structures was lacking an adequate technical basis.

Requests for license amendments were generally of high quality and permitted NRC approval without the need for further additional information. Examples of such responses included requests for TS changes regarding surveillance of snubbers, membership of the Plant Review Board, pressure-temperature limitations for reactor coolant system heatup and cooldown, and limited use of a new fuel cladding. The licensee's 10 CFR 50.59 reviews were also thorough.

Management involvement was apparent in the licensee's responses to numerous issues raised in a 10 CFR 2.206 petition. The replies were timely and responsive. The licensee was also observed to be responsive to the Atomic Safety and Licensing Board during prehearing activities associated with amendments on bypassing the high jacket water temperature trip for EDGs, and on proposed amendments affecting the frequency of EDG testing.

The licensee normally exhibited a thorough understanding of the regulations and NRC policies. However, one exception was noted this assessment period involving a limited understanding of the regulations. The licensee submitted a written request for an NRR waiver of compliance without also requesting an emergency TS change. The request was associated with a TS requirement on the heater capacity for the Piping Penetration Area Filtration and Exhaust System.

Licensee Event Reports (LERs) were timely and adequately described relevant aspects of the event, including corrective actions and actions to prevent recurrence.

The licensee had sufficient staff both at the plant and at the corporate office to support licensing activities. This was exhibited by timely and thorough responses throughout the assessment period.

Management has continued to support and improve plant organizations and programs which identify and assess problems, and provide a mechanism for their resolution. These organizations and programs included the Safety Audit and Engineering Review (SAER) group, the Independent Safety Engineering Group (ISEG), the Deficiency Card (DC) program, the open item/commitment tracking system, the event investigation and root cause determination programs, and the human factors evaluation program. The Plant Review Board (PRB) was also effective in reviewing matters related to nuclear safety.

The SAER group was effective in the identification of deficiencies and followup of corrective actions. Examples included a deficiency in the method of performing TS HVAC heater dissipation surveillances, improper approval of overtime, distribution and control problems with control room drawings, and Fitness for Duty program deficiencies. Management has taken timely and effective corrective action in response to SAER findings.

ISEG was also effective in identifying and/or resolving safety significant issues. Examples included a review of miswiring events occurring during maintenance, and an investigation of open sliding links. ISEG members frequently participated and lead event investigations. ISEG members have also been trained in and perform human factors evaluations.

The licensee's event investigation program was identified as a strength. The process was effective in assessing problems, determining root causes, and recommending corrective actions. One specific area which had been a weakness in the past was the investigations into EDG problems. This period, when several problems with the EDG voltage regulation and excitation system occurred, the licensee was aggressive in pursuing the causes of the problems and taking corrective action.

The licensee's Deficiency Card program was also effective in identifying, evaluating, reporting and dispositioning problems. Deficiencies were reviewed for reportability, evaluated, and corrective actions taken in a timely manner. Deficiency cards were also reviewed by the Plant Review Board for safety concerns. This process resulted in several licensee identified violations.

One weakness was identified with implementation of a safety evaluation into operating procedures. The licensee failed to completely incorporate the specified actions in a safety evaluation for minimization of potential main feedwater water hammer after a design change to remove differential temperature indication and alarms.

Management decisions regarding safety were considered conservative. As discussed in Section IV.A, plant management made decisions to shutdown the units, although not required by regulations. Licensee decisions on TS interpretations were found to be safe and conservative. Plant management also improved the TS clarification program. Previously, TS clarifications had been performed by the Operations manager with no other review. These clarifications now receive additional review by the Technical Support manager.

An NRC team inspection conducted an evaluation of corrective actions taken to address weaknesses noted during a previous Emergency Operating Procedure (EOP) Inspection. The team found that an extensive effort had been applied to revising the EOPs and the Abnormal Operating Procedures. The corrective actions were thorough and corrected the previous weaknesses. The approach towards addressing labeling discrepancies was technically sound and thorough in most cases. The EOPs were found to adequately mitigate the consequences of a broad range of accidents and multiple equipment failures.

No violations were cited.

2. Performance Rating

Category: 2

3. Recommendations

None

V. SUPPORTING DATA AND SUMMARIES

A. Licensee Activities

The third refueling outage for Unit 1 began September 14, 1991, and is scheduled through November 5, 1991 (52 days). Major activities include RTD bypass manifold removal, steam generator level tap modifications, and EDG 60 month inspection.

The licensee completed the first refueling outage for Unit 2 and returned to critical status on November 9, 1990. The outage was delayed due to data interface problems with the fuel handling machine and difficulties with the retaining ring on the main generator.

B. Direct Inspection and Review Activities

In addition to the routine inspections performed at the Vogtle facility by the NRC staff, special inspections were conducted as follows:

February 11-15, February 25 - March 1, and March 11-15, 1991, Maintenance Team Inspection

May 15, 1991, Emergency Preparedness Exercise Evaluation

### C. Management Conferences

An enforcement conference was held in Region 11 on August 19, 1991, to discuss the circumstances surrounding the failure to incorporate static head correction factors into Vogtle pressurizer pressure transmitter calibration procedures.

A management meeting was held in Birmingham, AL, on June 24, 1991 to discuss engineering support facilities available to the licensee.

A management interface meeting was held on June 20, 1991 to discuss the status of licensing activities and licensee initiatives.

A management meeting on phase 2 of the SNC organization was held January 11, 1991.

A management interface meeting was held on December 5, 1990 to discuss the status of licensing activities and licensee initiatives.

An enforcement conference was held in Region 11 on November 13, 1990, to discuss loss of control of safeguards information for events which occurred on October 11, 1990, and November 9, 1990.

### D. Review of Licensee Event Reports (LER)

During the assessment period 21 LERs were analyzed. The distribution of these events by cause as determined by the NRC staff was as follows:

Cause	Totals	Unit 1	Unit 2
Component Failure	7	2	5
Design/Procedures	2	1	1
Construction/Fabrication Installation	0	0	0
Personnel			
- Operating Activity	4	2	2
- Maintenance Activity	2	0	2
- Test/Calibration Activity	5	4	1
- Other	0	0	0
Other	1	0	1
Totals	21	9	12

- Notes:
1. With regard to the area of personnel, the NRC considers lack of procedures, inadequate procedures, and erroneous procedures to be classified as personnel error.
  2. The Other category is comprised of LERs where there was a spurious signal or a totally unknown cause.
  3. Four LERs were submitted as security and safeguards LERs, and are not included in the above tabulation.
  4. The above information was derived from a review of LERs performed by the NRC staff and may not completely coincide with the licensee's cause assignments.

#### E. Licensing Activities

During the rating period, 21 licensing amendments for the two Vogtle units were issued, beginning with Amendments 36/16 dated October 19, 1990 and ending with Amendments 46/25 dated September 19, 1991. Two of these amendments (Nos. 37/17) were issued on an emergency basis. No orders or exemptions were issued during this period, but exemptions to four regulations regarding fuel cladding material were in final phases of completion at the close of the assessment period. One amendment request was denied and one was withdrawn prior to completion of NRC's review.

On September 28, 1990, the licensee initially responded to a 10 CFR 2.206 petition. The licensee provided a more detailed response on April 1, 1991, after receipt of the petition's enclosures.

Prehearing activities were supported during the assessment period regarding amendments authorizing the bypassing of the high jacket water temperature trip of the EDGs during unplanned starts. An NRR audit of the licensee's implementation of this trip feature was conducted at the site the week of December 17, 1990. Responses to two sets of Atomic Safety and Licensing Board questions were provided prior to the Board's decision to terminate the proceeding. Other prehearing activities were associated with proposed amendments regarding TS criteria affecting the frequency of testing EDGs. These activities were concluded as a result of the licensee's decision to withdraw the amendment request.

## F. Enforcement Activity

	No. of Deviations and Violations in Each Functional Area (Unit 1/Unit 2)				
	Dev.	V	IV	III	II I
Plant Operations					1/4
Radiological Controls					
Maintenance/Surveillance	1/1		6/5		
Emergency Preparedness			3/3		
Security			2/2	1/1	
Engineering/Technical Support			2/2		
Safety Assessment/Quality Verification					
TOTAL		1/1	14/16	1/1	

A Severity Level II violation with a \$40,000 civil penalty in the area of Emergency Preparedness was issued on October 19, 1990, involving failure to make emergency notifications to state and local authorities within 15 minutes after the declaration of an emergency. The failure to make emergency notifications occurred during the Site Area Emergency on March 20, 1990, and was fully discussed in the previous SALP Report.

A Severity Level III violation with a \$50,000 civil penalty was issued on February 5, 1991, for breakdown in management oversight in the control of safeguards information.

## G. Reactor Trips

This summary includes the unscheduled manual and automatic reactor trips that have occurred since the beginning of the SALP period, October 1, 1990.

## Unit 1

December 18, 1990 - Unit 1 was manually tripped from 100% power due to a transformer failure which caused the loss of speed control to the B main feedwater pump (MFWP) and a subsequent decrease in steam generator level.

## Unit 2

February 18, 1991 - Unit 2 automatically tripped from 100% power occurred due to decreasing levels in a steam generator when the 2A MFWP experienced a loss of speed control. The licensee determined that a temporary voltage transient caused the 2A MFWP to decrease to approximately 3500 rpm, while the 2B MFWP speed remained constant.

February 23, 1991 - Unit 2 automatically tripped from 100% power during surveillance testing when a loop 1 hot leg RTD failed low. As part of the surveillance, one over-temperature delta T bistable was tripped, placing the reactor protection in a half scram condition. The loop 1 hot leg RTD spiked low, completing the 2 out of 4 logic for a reactor trip.

May 7, 1991 - Unit 2 automatically tripped from 100% power due to a loss of generator field, which caused a turbine trip/reactor trip. The cause of the loss of field has not been determined.