



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

Report No.: 50-424/88-17

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

Docket No.: 50-424

License No.: NPF-68

Facility Name: Vogtle 1

Inspection Conducted: March 25 - April 29, 1988

Inspectors:	<u><i>[Signature]</i></u>	<u>5/13/88</u>
	J. F. Rogge, Senior Resident Inspector	Date Signed
	<u><i>[Signature]</i></u>	<u>5/13/88</u>
	J. W. Burger, Resident Inspector	Date Signed
	<u><i>[Signature]</i></u>	<u>5/13/88</u>
	C. A. Patterson, Project Engineer	Date Signed
Approved by:	<u><i>[Signature]</i></u>	<u>5/13/88</u>
	M. V. Sinkule, Section Chief	Date Signed
	Division of Reactor Projects	

SUMMARY

Scope: This routine, unannounced inspection entailed resident inspection in the following areas: plant operations, radiological controls, maintenance, surveillance, fire protection, security, and quality programs and administrative controls affecting quality.

Results: One violation was identified in the area of operations. (Failure to implement appropriate lineup procedures for the annunciator power supply).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *G. Bockhold, Jr., General Manager Nuclear Operations
- *R. M. Bellamy, Plant Manager
- T. V. Greene, Plant Support Manager
- J. E. Swartzwelder, Nuclear Safety & Compliance Manager
- W. F. Kitchens, Manager Operations
- *W. C. Marsh, Deputy Manage Operations
- M. A. Griffis, Maintenance Superintendent
- C. C. Echert, Manager Chemistry and Health Physics
- *A. L. Mosbaugh, Assistant Plant Support Manager
- H. M. Handfinger, Assistant Plant Support Manager
- F. R. Timmons, Nuclear Security Manager
- R. E. Lide, Engineering Support Supervisor
- E. M. Dannemiller, Technical Assistant to General Manager
- *G. R. Frederick, Quality Assurance Site Manager - Operations
- R. M. Odom, Plant Engineering Supervisor
- *K. Pointer, Regulatory Specialist

Other licensee employees contacted included craftsmen, technicians, supervision, engineers, operations, maintenance, chemistry, QC inspectors, and office personnel.

*Attended Exit Interview

2. Exit Interviews (30703)

The inspection scope and findings were summarized on April 29, 1988, with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection results. No dissenting comments were received from the licensee. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspector during this inspection. Region based NRC exit interviews were attended during the inspection period by a resident inspector. This inspection closed two Licensee Event Reports. The items identified during this inspection were:

Violation 50-424/88-17-01 "Failure To Establish Adequate Procedures For The Alignment And Operation Of Annunciator Inverters" - Paragraph 6.

Inspector Followup Item (IFI) 50-424/88-17-02 "Review Corrective Action To Ensure Proper Control Room Lamp Replacement" - Paragraph 5.

3. Operational Safety Verification (71707) (93702)

The plant began this inspection period in Power Operation (Mode 1) near 100% power until April 6, when the unit tripped on a loss of main turbine stator cooling. The unit returned to criticality and obtained Mode 1 on April 9. On April 24, the unit was manually tripped from 100% power due to decreasing steam generator No. 4 water level when the feedwater isolation valve failed shut. The unit returned to criticality and obtained Mode 1 on April 27. One ESF actuation occurred on April 10, when a Containment Ventilation Isolation occurred.

a. Control Room Activities

Control Room tours and observations were performed to verify that facility operations were being safely conducted within regulatory requirements. These inspections consisted of one or more of the following attributes as appropriate at the time of the inspection.

- Proper Control Room staffing
- Control Room access and operator behavior
- Adherence to approved procedures for activities in progress
- Adherence to Technical Specification (TS) Limiting Conditions for Operations (LCO)
- Observance of instruments and recorder traces of safety related and important to safety systems for abnormalities
- Review of annunciators alarmed and action in progress to correct
- Control Board walkdowns
- Safety parameter display and the plant safety monitoring system operability status
- Discussions and interviews with the On-Shift Operations Supervisor, Shift Supervisor, Reactor Operators, and the Shift Technical Advisor to determine the plant status, plans and to assess operator knowledge
- Review of the operator logs, unit log and shift turnover sheets

No violations or deviations were identified.

b. Facility Activities

Facility tours and observations were performed to assess the effectiveness of the administrative controls established by direct observation of plant activities, interviews and discussions with licensee personnel, independent verification of safety systems status and LCOs, licensee meetings and facility records. During these inspections the following objectives are achieved:

- (1) Safety System Status - Confirmation of system operability was obtained by verification that flowpath valve alignment, control and power supply alignments, component conditions, and support

systems for the accessible portions of the ESF trains were proper. The inaccessible portions are confirmed as availability permits.

- (2) Plant Housekeeping Conditions - Storage of material and components and cleanliness conditions of various areas throughout the facility were observed to determine whether safety and/or fire hazards existed.
- (3) Fire Protection - Fire protection activities, staffing and equipment were observed to verify that fire brigade staffing was appropriate and that fire alarms, extinguishing equipment, actuating controls, fire fighting equipment, emergency equipment, and fire barriers were operable.
- (4) Radiation Protection (71709) - Radiation protection activities, staffing and equipment were observed to verify proper program implementation. The inspection included review of the plant program effectiveness. Radiation work permits and personnel compliance were reviewed during the daily plant tours. Radiation Control Areas (RCAs) were observed to verify proper identification and implementation.
- (5) Security (71881) - Security controls were observed to verify that security barriers were intact, guard forces were on duty, and access to the Protected Area was controlled in accordance with the facility security plan. Personnel were observed to verify proper display of badges and that personnel requiring escort were properly escorted. Personnel within Vital Areas were observed to ensure proper authorization for the area. Equipment operability or proper compensatory activities were verified on a periodic basis.

One violation was identified on April 5 and was referred to NRC Region II security for further inspection followup and inclusion in the security report.

- (6) Surveillance (61726)(61700) - Surveillance tests were observed to verify that approved procedures were being used; qualified personnel were conducting the tests; tests were adequate to verify equipment operability; calibrated equipment was utilized; and TS requirements were followed. The inspectors observed portions of the following surveillances and reviewed completed data against acceptance criteria:

<u>Surveillance No.</u>	<u>Title</u>
54004-C	Limiting Hot Channel Factor Determination
54005-C	Target Axial Flux Difference Determination
54013-C	Overall Core Reactivity Balance
55003-C	Incore/Excore Detector Calibration
55005-C	Determination Of Movable Incore Detector Operating Voltages
55006-C	Movable Incore Detector System Operating Instructions
14830-1	Quarterly Check Valve Inservice Test
14825-1	Quarterly Inservice Valve Test

- (7) Maintenance Activities (62703) - The inspector observed maintenance activities to verify that correct equipment clearances were in effect; work requests and fire prevention work permits, as required, were issued and being followed; quality control personnel were available for inspection activities as required; retesting and return of systems to service was prompt and correct; TS requirements were being followed. Maintenance Work Order (MWO) backlog was reviewed. Maintenance was observed and MWO packages were reviewed for the following maintenance activities:

<u>MWO No.</u>	<u>Work Description</u>
18801753	ESF Chilled Water/Chiller A Used Nitrogen to pressurize chiller to detect leaks. Found leaks were repaired on same MWO.
18802177	Temperature Controller Input Linkage Failed - Reassembled linkage and controller was calibrated as required.

MWO No.
(cont'd)

Work Description

18801315

Diesel Lube Oil Keep Warm Filter
Pressure High. Filters were
replaced.

No violations or deviations were identified.

5. Review of Licensee Reports (90712) (90713) (92700)

a. In-Office Review of Periodic and Special Reports

This inspection consisted of reviewing the below listed reports to determine whether the information reported by the licensee was technically adequate and consistent with the inspector knowledge of the material contained within the report. Selected material within the report was questioned randomly to verify accuracy and to provide a reasonable assurance that other NRC personnel have an appropriate document for their activities.

Monthly Operating Report - The report dated April 15, 1988, was reviewed. The inspector had no comments.

Annual Report - The addenda to this report dated March 28, 1988 was reviewed. The inspector had no comments.

Special Report 50-424/88-01 - The special report dated March 14, 1988, entitled "Area Temperature Monitoring", was reviewed. This item is closed.

Annual Personnel Monitoring Report - The report dated March 28, was reviewed. The inspector had no comments.

Special Report - This unnumbered special report dated March 31, 1988 entitled "Pressure Lacking Of Motor Operated Gate Valves", was reviewed.

b. Licensee Event Reports and Deficiency Cards

Licensee Event Reports (LER) and Deficiency Cards (DC) were reviewed for potential generic impact, to detect trends, and to determine whether corrective actions appeared appropriate. Events which were reported pursuant to 10 CFR 50.72, were reviewed as they occurred to determine if the technical specifications and other regulatory requirements were satisfied. In-office review of LERs may result in further followup to verify that the stated corrective actions have been completed, or to identify violations in addition to those

described in the LER. Each LER is reviewed for enforcement action in accordance with 10 CFR Part 2, Appendix C. Review of DCs was performed to maintain a real-time status of deficiencies, determine regulatory compliance, follow the licensee corrective actions, and assist as a basis for closure of the LER when reviewed. Due to the numerous DCs processed only those DCs which result in enforcement action or further inspector followup with the licensee at the end of the inspection are listed below. The LERs and DCs denoted with an asterisk indicates that reactive inspection occurred at the time of the event prior to receipt of the written report.

(1) Deficiency Card reviews:

DC 1-88-787 "Failure To Sample Accumulator After Addition." On March 24, the licensee identified that a failure to sample Accumulator No. 2 within 6 hours of a volume increase of 1% per Technical Specification Surveillance 4.5.1.1b had occurred. The Accumulator was filled on March 22, at 10:30 a.m. and the sample was taken 6:30 a.m. on March 23, and found within specification. This item will receive further followup when submitted as an LER pursuant to 50.73 (a)(2)(i)(B).

DC 1-88-891 "Radioactive Material Shipping." On April 6, the licensee was informed by Westinghouse that an In-vent radiation monitor had been shipped to their Baltimore, MD facility with a radioactive source installed without the appropriate shipping papers and labels. This issue was referred to the Regional Radiation Specialists for followup during the next routine inspection.

*DC 1-88-913 "Stator Cooling Water Trip." On April 7, the unit tripped from 100% power when stator cooling water temperature control valve, TCV-6800 failed in the heat exchanger bypass position. In this condition, the stator cooling water temperature became elevated and actuated a turbine side trip. This item will receive further followup when submitted as an LER pursuant to 50.73 (a)(2)(iv).

DC 1-88-939 "Containment Ventilation Actuation." On April 10, a containment ventilation isolation occurred following a momentary loss of power to radiation monitor RE25651. The loss of power occurred when a technician was attempting to restart the paper drive for the monitor. This item will receive further followup when submitted as an LER pursuant to 50.73 (a)(2)(iv).

DC 1-88-943 "Incorrect Radiation Monitor Alarm Setpoint." On April 11, the licensee identified that the High and Alert alarm setpoints for IRE-0848 had been incorrectly set since March 9.

This instrument monitors the Turbine Building (floor drains) sump effluent lines and is required to be operable per TS 3.3.3.9 assure that TS 3.11.1.1 radioactive limits are not exceeded. This item will receive further followup when submitted as an LER pursuant to 50.73 (a)(2)(i)(B).

DC 1-88-964 "Missed Weekly Surveillance." On April 13, the licensee identified that the weekly operations surveillance due by April 11, had not been performed. The routine tasking sheet for the surveillance was not issued after partial failure of the procedure had occurred on April 2. On April 13, the surveillance was performed satisfactorily. This item will receive further followup when submitted as an LER pursuant to 50.73 (a)(2)(i)(B).

*DC 1-88-1046 "Manual Reactor Trip." On April 25, at 10:22 a.m., the unit was manually tripped from 100% power due to the impending loss of water level in Steam Generator No. 4. The loss of water level was due to a Main Feed Isolation Valve (MFIV) which had closed. The operators attempted to reopen the valve, but were unable to. The steam generator water level dropped to 41% narrow range, while feed flow still would not respond to the OPEN signal of the MFIV. The reactor was then manually tripped. The licensee was unable to determine the root cause of the valve failure. However, as a precautionary measure prior to restart, the licensee decided to replace the electrical components including solenoid valves that could cause the valve to fast close. The valve was tested prior to restart and the replaced components are being tested and evaluated in an attempt to determine a failure mode. In addition, the control system has had recorders installed to record the failure of the valve control system if another occurred. This item will receive further followup when submitted as an LER pursuant to 50.73 (a)(2)(iv).

*DC 1-88-1091 "Incorrect Lamp Replacement Causes Feed Pump Trip." The unit was in mode 3 on April 26, when an operator incorrectly inserted an incandescent light bulb in the socket of a failed neon light bulb and caused a trip of the Main Feedwater Pump. Neon light bulbs are used to monitor the operability of the trip coil and as an indication of a component trip. Upon inserting the incandescent light in the neon light bulb socket, the resistance became much lower than that of neon. Due to the lower resistance, enough current passed through the system to energize the trip coil for the Main Feedwater Pump Steam Turbine. Had this event occurred while the unit was operating in mode 1, a reactor trip would occur. This item will receive inspector followup to review the licensee's corrective action to

preclude inadvertent trips of plant equipment using neon light bulbs. IFI 50-424/88-17-02 "Review Corrective Action To Ensure Proper Control Room Lamp Replacement."

- (2) The following LERs were reviewed and are ready for closure pending verification that the licensee's stated corrective actions have been completed.

- *50-424/87-69, Rev. 1 "Operating Above The Maximum Power Level Specified In The Operating Licensee." The item remained open pending review of the supplemental LER. The supplemental LER dated March 31, 1988, was reviewed. Interim corrective action documentation is being reviewed by the licensee. Pending completion of this review, the issue remains open.

- (3) The following LERs were reviewed and closed.

(a) 50-424/87-05, Rev. 5 "120V AC Voltage Transient Causes ESF Actuation." This supplemental report dated April 7, 1988, completes the operating requirement of the licensee. Final corrective action will include the installation of static transfer switches to eliminate the power swings. The inspector verified that this work was scheduled for the first refueling outage as stated in the report. Design package DCP-P87-UIN0448 "Static Transfer Switch From Inverters" will be followed during the refueling inspection.

(b) 50-424/87-61, Rev. 0 "Failure To Record Limiting Conditions Of Operation Allows Improper Mode Change." On October 28, 1987, at 1742 CST with reactor coolant temperature and pressure at approximately 340 degrees Fahrenheit and 350 psig respectively, Unit 1 went from Mode 4 (Hot Shutdown) to Mode 3 (Hot Standby) without completing all required actions. Two actions had not been completed prior to the change to Mode 3 resulting in a violation of Technical Specifications paragraph 3.0.4. The two actions consisted of a failure to perform functional tests for the Safety Injection (SI) pump "A" and AFW Pump Train "A" discharge check valve.

This item is an additional example of a previous violation (NRC Rpt. 50-424/88-09), which occurred the same day as described in LER 50-424/87-62.

6. Loss of Control Room Annunciators

While in mode 3 on April 26 at 1:54 a.m. (EST), a 4160 to 480 volt transformer winding failed resulting in a loss of power to the control

building Motor Control Center (MCC) 1NBR. A backup DC source of power to the control room annunciator panel failed to automatically transfer. Control room annunciators were lost for twelve minutes until an alternate AC source could be manually transferred to another supply power.

a. Transformer Failure

The transformer that failed was the 1NB10 transformer which receives power from an off-site source. The 1NB10 transformer supplies non-class 1E power to the diesel generator building "B" MCC 1NBO and control building MCC 1NBR. The transformer was replaced with a new transformer.

b. Inverter Failure

Power to the control room annunciator panel comes from two inverters. Each inverter has an AC and DC power input with AC the normal supply. Upon loss of AC power, two static transfer switches automatically transfers power to the DC supply. After the AC power supply was lost due to the transformer failure, both inverters failed to supply power. Discussions with operations personnel revealed that the output breaker of one inverter was found open. The other inverter had both power supply breakers and the output breaker closed but failed to transfer to the DC supply.

Also, the inverter alignment was not covered in any plant procedure. In addition, labeling at the inverter breaker as inadequate to describe the purpose of the breaker. Failure to have the inverter alignment and operation in a plant procedure is a violation of 10 CFR 50 Appendix B, Criterion 5, and TS 6.7.1 50-424/88-17-01 "Failure To Establish Adequate Procedures For The Alignment And Operation Of Annunciator Inverters."

Power to the annunciator was restored by manually transferring the AC power supply to an alternate source. The annunciator power was lost for twelve minutes. During the time the annunciator power was lost, control room operators continuously monitored the control room indications for any abnormal condition.

c. The Vogtle Emergency Procedure Does Not Require An Alert.

Operations personnel reviewed the plant emergency procedures for reporting and event classification if control room annunciators are lost. Requirements at other nuclear plants generally require an "Alert" if the control room annunciators are lost. The inspector reviewed Georgia Power Company's Plant Hatch procedure for lost annunciators. The procedure Emergency Classification and Initial Actions 73EP-EIP-001-0S Section E.16, Alarms and Annunciators, which requires an alert be declared. If most or all alarms are lost and a plant transient is initiated or in progress a SITE AREA EMERGENCY is required.

The licensee did not report this event or declare any type of emergency. Furthermore, since this is not considered safety equipment or class 1E equipment, no known action is planned by the licensee. This item will be discussed internally with the NRC.

d. Corrective Actions

As a result of the inverters failure to transfer, the licensee has initiated the following:

- (1) Prepared a deficiency card on the inverter that failed to transfer.
- (2) Prepared a maintenance work order to correct the failed inverter.
- (3) Initiated a procedure to cover operation and alignment of the inverter.
- (4) Initiated steps to better label the inverters and associated circuit breaker.