



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

Report Nos.: 50-321/85-12 and 50-366/85-12

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

Docket Nos.: 50-321 and 50-366

License Nos.: DPR-57 and NPF-5

Facility Name: Hatch 1 and 2

Inspection Conducted: April 29 - May 3, 1985

Inspector: M. F. Runyan  
M. F. Runyan

5/22/85  
Date Signed

Approved by: C. M. Upright  
C. M. Upright, Section Chief  
Division of Reactor Safety

5/23/85  
Date Signed

SUMMARY

Scope: This routine, unannounced inspection involved 32 inspector-hours on site in the areas of licensee action on previous enforcement matters, surveillance testing and calibration control program, measuring and test equipment program, and licensee action on previously identified inspection items.

Results: Two violations were identified - Noncompliance with Unit 1 Technical Specification Surveillance Test Frequencies and Inadequate Calibration Procedures in the Maintenance Tool Shop.

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## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

J. Beck, Maintenance Foreman  
E. Burkett, Engineer, Reactor Systems  
T. Elton, Engineer and Supervisor, Regulatory Compliance  
\*P. Fornel, QA Site Manager  
D. Griffin, Performance Engineer  
\*C. Jones, Engineering Manager  
B. Keck, Engineering Supervisor, Reactor Systems  
\*H. Nix, General Manager  
J. Payne, Engineer, Regulatory Compliance  
T. Powers, Superintendent, I&C  
J. Purvis, I&C Foreman  
\*T. Seitz, Maintenance Manager  
H. Scarborough, Maintenance Supervisor  
\*C. Stancil, Engineer, Regulatory Compliance  
\*L. Sumner, Operations Manager  
\*S. Tipps, Superintendent, Regulatory Compliance

Other licensee employees contacted included technicians and office personnel.

#### NRC Resident Inspector

\*P. Holmes-Ray, Senior Resident Inspector

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on May 3, 1985, with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings listed below.

Violation: Inadequate Calibration Procedures in the Maintenance Tool Shop, paragraph 5.a.

Violation: Noncompliance with Unit 1 Technical Specification Surveillance Test Frequencies, paragraph 4. The licensee denied the violation on the basis that their interpretation of the Technical Specification was consistent with the wording provided.

Inspector Followup Item: Promptness of Evaluations of Out-of-Tolerance Measuring and Test Equipment, paragraph 5.b.

Inspector Followup Item: Method of Verifying Validity of Previous Test Results for Out-of-Tolerance Measuring and Test Equipment, paragraph 5.c.

The licensee did not identify as proprietary any of the material provided to or reviewed by the inspector during this inspection.

### 3. Licensee Action on Previous Enforcement Matters

(Closed) Severity Level IV Violation 321, 366/84-33-01: Failure to Issue Audits Within TS Required Timeframes.

The licensee response dated November 5, 1984, was considered acceptable by Region II. The post audit conference is now considered the completion of the audit as prescribed by the ANSI Standard. The QA Site Manager is required to ensure the timely issuance of the audit and uses a checklist to this end. Procedure QA-05-01 was revised to clearly define the Technical Specification requirement to issue audits within 30 days of completion. From a review of six audits since the citation, all were issued within 30 days of completion. The inspector concluded that the licensee had determined the full extent of the violation, taken action to correct current conditions, and developed corrective actions needed to preclude recurrence of similar problems. Corrective actions stated in the licensee response have been implemented.

### 4. Surveillance Testing and Calibration Control (61725)

- References:
- (a) 10 CFR 50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants
  - (b) Regulatory Guide 1.33, Quality Assurance Program Requirements (Operations), Revision 2
  - (c) ANSI N18.7-1976, Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants
  - (d) Technical Specifications, Section 4

The inspector reviewed the licensee surveillance testing and calibration control program required by references (a) through (d) to verify that the program had been established in accordance with regulatory requirements, industry guides and standards, and Technical Specifications. The following criteria were used during this review to determine the overall acceptability of the established program:

- A master schedule for surveillance testing and calibration delineates test frequency, current status, and responsibilities for performance.
- The master schedule reflects the latest revisions of the Technical Specifications and operating license.

- Responsibilities are assigned to maintain the master schedule up-to-date and to ensure that required tests are performed.
- Detailed procedures with appropriate acceptance criteria have been approved for all surveillance testing requirements.
- The program defines responsibilities for the evaluation of surveillance test data as well as the method of reporting deficiencies and malfunctions.

The inspector also verified that similar controls have been established for calibration of instruments used to verify safety functions but not specifically identified in the Technical Specifications. The documents listed below were reviewed to verify that these criteria had been incorporated into the surveillance testing and calibration control program:

QAM, Section 5, Instructions, Procedures, and Drawings, Revision 36

QAM, Section 16, Corrective Action, Revision 36

QAM, Appendix B, Safety Related Items - "Q" List, Revision 36

40AC-REG01-0, Technical Specifications Surveillance Program,  
Revision 0

40AC-ENG01-0, Inservice Inspection Program, Revision 0

10AC-MGR03-0, Preparation and Control of Procedures, Revision 2

5IGM-CAL03-0, Calibration Program for LCO/BOP Instrumentation,  
Revision 0

The master schedule for Technical Specification (TS) surveillance testing and inservice inspection of pumps and valves consists of a computer data base for each unit. This data base lists the procedure number, responsible group, test type, required frequency, grace period, TS requirement, due date, and ten previous performance dates for each required test. The data base was recently audited by an outside consultant after several errors were found. The licensee submitted licensee event reports (LER) to document problems such as failing to revise the data base correctly for a TS amendment. The independent audit and intensive efforts by the licensee provide reasonable assurance that the data base is now consistent with the TS.

Additional problems were identified with implementation of the program. In one case, the licensee waited until the last permissible date to perform a test, then incurred problems with badging personnel essential for its performance, and thus exceeded the limit. In another case, an inadvertent sign-off of a tracking sheet was lined out inconspicuously such that personnel missed the fact that it had not been performed. LERs were submitted for these and similar problems. Several NRC violations were submitted for both licensee-identified and NRC-identified deficiencies.



Other areas of program deficiencies were recently identified in the following site QA audits:

QA-84-539, QA Audit of the Surveillance Program, December 13, 1984

QA-85-66, QA Audit of the Site Chemistry Program, February 21, 1985

QA-85-069, QA Audit of Reactor Physics, March 5, 1985

QA-85-146, QA Audit of Test Equipment, April 8, 1985

Among the problems identified by these audits were procedures not fully implementing the TS, failure to review test data, and errors in testing frequency. The licensee is aggressively pursuing the closing of these items.

The following surveillance test work packages were reviewed to check program implementation:

HNP-1-3117-M, Reactor Water Level Loop Calibration, 1/8/85

HNP-1-3966-1, Air Test on Torus Headers and Nozzles, 6/5/84

HNP-1-3006-1, Main Steam Valves Closure Test, 4/6/85

These work packages appeared complete, met acceptance criteria, were properly reviewed, and were performed on the dates specified by the data base.

The licensee's program of inservice inspection (ISI) of pumps and valves as required by ASME Code Section XI, Subsections IWP and IWV, is pending approval from the Division of Licensing, NRC. The following ISI work packages were verified complete and found to meet procedural acceptance criteria.

HNP-1-3405-1, RCIC Pump Operability, 1/10/85

HNP-1-3303-1,2,3, HPCI Pump Operability, 2/22/85

HNP-1-3201-1,2, Core Spray Pump Operability, 3/14/85

The licensee is required to establish a calibration program for in-plant process instrumentation associated with safety-related systems or functions. A master calibration schedule addresses both safety-related and balance-of-plant instrumentation and provides information similar to the surveillance test schedule. The following plant instruments were chosen at random from several ISI and surveillance test procedures to verify their inclusion in the calibration program:

1E41-R601      HPCI Pump Discharge Pressure

1E41-R613	HPCI Pump Flow Rate
E21-R600	Core Spray Pump Discharge Pressure
E21-R601	Core Spray Pump Flow Rate
B21-R607	Vessel Shell and Flange Temperature Recorder
E11-N015A-B	RHR Loop Flow Transmitter
C41-N003	Standby Liquid Control Tank Temperature

The above instruments were included in the program. Calibration frequencies appeared consistent with instrument type and good engineering practice.

Within this area, one violation was identified. Unit 1 TS 1.0-II states, "Periodic surveillance tests, checks, calibrations, and examinations shall be performed within the specified surveillance intervals. These intervals may be adjusted plus or minus 25%." The licensee disagreed with this violation on the basis that their program to control surveillance test frequency was developed to assure consistency with the specific TS wording. Region II management discussed this issue with NRC headquarters and determined that this TS is intended to limit the time between any two tests to 125 percent of the specified interval. The licensee interpreted that the plus or minus 25 percent could be applied independently to fixed scheduled intervals in such a manner that a test performed 25 percent early, then 25 percent late the next time, could result in 150 percent of the TS interval between two tests. Other Region II facilities having similar TS wording are testing in compliance with the NRC intent stated above. The following examples are monthly tests which exceeded the maximum performance interval of 38.75 days required by TS 1.0-II:

Residual Heat Removal Pump Flow (LPCI Flow Switch) Test required by TS Table 4.2-5(7) performed 1/7/85 and 2/20/85 or 44 days between tests.

Main Steam Isolation Valve Closure Test required by TS Table 4.1-1 (10) performed 7/26/84 and 9/5/84 or 41 days between tests.

High Drywell Pressure Instrument Test required by TS Table 4.1-1(5) performed 1/3/85 and 2/12/85 or 40 days between tests.

The performance of these tests were not affected by plant condition or operating mode. These examples are not all inclusive. Failure to comply with Unit 1 TS surveillance test frequencies is identified as violation 321/85-12-01.

##### 5. Measuring and Test Equipment Program (61724)

References: (a) 10 CFR 50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants

- (b) Regulatory Guide 1.33, Quality Assurance Program Requirements (Operations), Revision 2
- (c) ANSI N18.7-1976, Administrative Controls and Quality Assurance of the Operational Phase of Nuclear Power Plants
- (d) Regulatory Guide 1.30, Quality Assurance Requirements for the Installation, Inspection, and Testing of Instrumentation and Electric Equipment, August 11, 1972
- (e) ANSI N45.2.4-1972, IEEE Standard, Installation, Inspection, and Testing Requirements for Instrumentation and Electric Equipment During the Construction of Nuclear Power Generating Stations

The inspector reviewed the licensee measuring and test equipment (M&TE) program required by references (a) through (e) to verify that the program had been established in accordance with regulatory requirements and industry guides and standards. The following criteria were used during this review to determine the overall acceptability of the established program:

- Responsibility is delegated and criteria established to assign and adjust calibration frequency for each type of M&TE.
- An equipment inventory list identifies all M&TE used on safety-related components, the calibration frequency and standard, and the calibration procedure.
- Formal requirements exist for marking the latest calibration date on each piece of equipment.
- The program assures that each piece of equipment is calibrated on or before the date required or stored in a location separate from in-service M&TE.
- Written requirements prohibit the use of M&TE which has not been calibrated within the prescribed frequency.
- When M&TE is found out of calibration, the program requires documented evaluations to determine the cause of the out-of-calibration condition and the acceptability of items previously tested.
- The program assures that new M&TE is added to the inventory list and calibrated prior to use.

The documents listed below were reviewed to verify that these criteria had been incorporated into the M&TE program:

FSAR, Section 17.2.12, Control of Measuring and Test Equipment

QAM, Section 12, Control of Measuring and Test Equipment, Revision 31

QAM, Section 16, Corrective Action, Revision 36

50AC-MNT02-0, Control of Measuring and Test Equipment, Revision 0

51GM-CAL01-0, Control of Test Shop Instrumentation, Revision 0

51GM-MNTC2-0, Maintenance Housekeeping and Tool Control, Revision 0

51GM-CAL02-0, Maintenance Shop Measuring and Test Equipment, Revision 0

The inspector reviewed QA-85-146, QA Audit of Test Equipment, April 8, 1985. The response date for the audited groups is May 8, 1985. This audit identified deficiencies addressed as inspector followup items below.

The I&C shop is the control and issue point for the bulk of the plant's M&TE. Most equipment is sent off site for calibration. The exceptions are pressure gages, thermometers, and stop watches. This equipment is calibrated according to the following procedures:

HNP-0-5936, Fluke 2160A Digital Thermometer Calibration

HNP-0-5913, Stop Watch Calibration Check

HNP-0-5901, Bourdon Tube Style Test Gauge

The above procedures provided appropriate guidance for performing the calibration and included specified acceptance criteria.

As a check of control and accountability, the following items of M&TE were selected from the master equipment index:

<u>MPL No.</u>	<u>Description</u>
L51-E802	Oscilloscope
L51-E827	Ammeter
L51-E840	High Resistance Meter
L51-E864	Tachometer
L51-F888	Digital Multimeter
L51-F892	Digital Multimeter
L51-F900	Digital Multimeter
L51-F921	Digital Thermometer
L51-G506	Digital Pressure Indicator
L51-P813	Wheatstone Bridge
L51-W805	Deadweight Tester

The above equipment was properly stored, tagged, and documented or could be accounted for with the exception of the digital thermometer. Apparently, it had been checked out without documentation on the maintenance history card. This appeared to be an isolated occurrence.



The licensee is required to evaluate previous tests performed with M&TE found out-of-tolerance during calibration. The following evaluations were reviewed:

<u>MPL No.</u>	<u>Instrument Type</u>	<u>Date Found Out-of-Tolerance</u>	<u>Date of Review</u>
L51-F895	Digital Multimeter	10/11/84	11/29/84
L51-F911	Digital Multimeter	11/15/84	1/4/85
L51-F912	Digital Multimeter	2/5/85	2/21/85

Both the timeliness and the method of conducting these reviews are addressed as inspector followup items below.

The calibration and issuance of mechanical test equipment is conducted in the maintenance shop. The following tools were selected from the equipment index to check control and accountability:

<u>MPL No.</u>	<u>Description</u>
L51M-0186	24" Vernier Caliper
L51M-0727	Micrometer 1-2"
L51M-1027	Micrometer 5-6"
L51M-1159	Amp Crimping Tool
L51M-1314	Test Stand Dial Indicator
L51M-1348	Torque Wrench
L51M-2002	Hydraulic Torque Wrench
L51M-4317	Dial Indicator 0-2"

The above tools were either properly stored or checked out. Calibration stickers agreed with information provided on the master index.

Within this area, one violation and two inspector followup items were identified and are discussed in the following paragraphs.

a. Inadequate Calibration Procedures in the Maintenance Tool Shop

10 CFR 50, Appendix B, Criterion XII, requires that measures shall be established to assure that measuring and testing devices are properly calibrated. 10 CFR 50, Appendix B, Criterion V, states that activities affecting quality shall be prescribed by procedures appropriate to the circumstances which include quantitative or qualitative acceptance criteria. Procedures for the calibration of test equipment in the maintenance tool shop were reviewed. Major deficiencies were found with procedure HNP-6943, Calibration Check on Precision Measuring Equipment, Revision 1. This procedure, which addresses calibration of micrometers, vernier calipers, depth gauges, and dial indicators, does not provide prerequisites such as environmental controls for the calibration, step-by-step instructions explaining how to perform the

calibration, or criteria by which to determine the acceptable tolerance of the device. Neither vendor manuals nor other manufacturer's data were available to provide this information. Calibration of precision measuring equipment is sensitive to temperature, rates of temperature change, and possibly other factors such as humidity, dust, and vibration. This can best be controlled by establishing environmental conditions satisfactory for all calibration activities conducted in the shop. Step-by-step instructions are necessary for quality control of any activity directly affecting safety. Acceptance criteria must establish tolerance bands within which the device will be considered acceptable.

Though the calibration procedure for precision measuring equipment has been specifically discussed above, all calibration procedures in the shop should be reviewed as a generic issue. Failure to provide adequate calibration procedures in the maintenance tool shop is identified as violation 321, 366/85-12-02.

b. Promptness of Evaluations of Out-of-Tolerance Measuring and Test Equipment

The licensee is committed to ANSI N18.7-1976, Section 5.2.16, which states, "When calibration, testing, or other measuring devices are found to be out of calibration, an evaluation shall be made and documented concerning the validity of previous tests and the acceptability of devices previously tested from the time of the previous calibration." Though the standard does not mention the timeliness of these evaluations, this is an important consideration because invalid settings, test data, or calibrations could invoke limiting conditions of operation. In both the I&C and maintenance shops, many evaluations had taken from one to three months to complete. Lengthy delays are due in part to procedures which do not provide a necessary time constraint. Site QA identified this problem in a recent audit and is awaiting initial responses. Until the timeliness of out-of-tolerance evaluations is procedurally and effectively controlled, this is identified as inspector followup item 321, 366/85-12-03.

c. Method of Verifying Validity of Previous Test Results for Out-of-Tolerance Measuring and Test Equipment

51GM-CAL01-0, Control of Test Shop Instrumentation (I&C), Revision 0, states that when M&TE is found out of calibration and a review reveals that previous tests are in question, plant instrumentation will be retested, beginning with the most recent calibrations, until three consecutive instruments have been checked to ensure the quality of the remaining calibrations. However, an item of M&TE may be out of calibration on several scales. The last three tests may have been affected by a scale only slightly out of tolerance while previous tests may have been affected by another scale greatly out of tolerance. In this case, the assumption that previous test are acceptable may be erroneous. In the maintenance shop, only the last affected test is

rechecked though this policy is not written. These problems were recently identified by site QA and corrective action is in progress. Until the program is revised to ensure that evaluations of out-of-tolerance M&TE address the issue of multiple scales and a uniform policy on previous usage, this item is identified as inspector followup item 321, 366/85-12-04.

6. Licensee Action on Previously Identified Inspection Findings (92701)

(Closed) Inspector Followup Item 321, 366/84-33-02: Management Attention to Detail

The QA site manager is now required to ensure that a response date is specified in the transmittal letter to all affected groups. A sample of six recent audits confirmed compliance with this requirement. Procedure QA-05-01 was revised to state TS requirements for issuing audits and to clarify the QA escalation process.