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

Report No.: 50-424/86-38

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

Docket No.: 50-424 License No.: CPPR-108

Facility Name: Vogtle 1

Inspection Conducted: May 12-16 and June 2-6, 1986

Inspector: L R Moore 7/15/86
L. R. Moore Date Signed

Approved by: [signature] 7/15/86
G. A. Belisle, Acting Section Chief Date Signed
Division of Reactor Safety

SUMMARY

Scope: This routine, announced inspection was conducted in the areas of Readiness Review Appendix G, "Measuring and Test Equipment."

Results: No violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

C. Gardner, Technical Support Group Supervisor
*E. Groover, Quality Assurance (QA) Site Manager - Construction
*C. Hayes, Vogtle Quality Assurance Manager (VQAM)
H. Kattygut, Measuring and Test Equipment (M&TE) Supervisor - Construction
P. Kyner, Lead Auditor - Bechtel Power Services (BPS)
*G. McCarley, Project Compliance Coordinator
*R. McManus, Assistant Project Construction Manager (APCM) II - Georgia Power Company (GPC)
T. Mitchell, Corporate QA Auditor
**D. Sanderfer, Readiness Review Team Member
H. Swain, Mechanical Control Section Quality Supervisor
*P. Thomas, Readiness Review Team Leader

Other licensee employees contacted included construction craftsmen, engineers, technicians, operators, mechanics, security force members, and office personnel.

NRC Resident Inspector

*H. Livermore

*Exit interview on May 16, 1986
**Exit interview on June 6, 1986

2. Exit Interview

The inspection scope and findings were discussed on May 16, 1986, and also discussed on June 6, 1986, with those persons indicated in paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings. 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.

3. Licensee Action on Previous Enforcement Matters

This subject was not addressed in the inspection.

4. Unresolved Items

Unresolved items were not identified during the inspection.

5. Scope of Review

This inspection consisted of an examination of each section of Appendix G. Sections 1.0, 2.0, 4.0, 6.0, and 8.0 presented data on the scope, responsible organizations, program description, changes and conclusions regarding assessment of the appendix and required less detailed review than the remaining sections. The more significant aspects of the appendix were in Sections 3.0, 5.0, and 7.0 regarding licensee commitments and implementation, audits and evaluations conducted, and appendix verification. The inspector examined a limited sample of records reviewed by the Readiness Review Staff (RRS) and an independent sample to examine various findings and corrective actions.

The initial technical review of Appendix G was conducted in the Region II Office during the week of May 5, 1986, followed by onsite inspection activity during the weeks of May 12-16 and June 2-6, 1986. Additionally, the inspector reviewed audits at the GPC Corporate Office in Atlanta on May 28, 1986.

Onsite inspection included the program review by examination of procedures and program description. The inspector reviewed procedures and commitment implementation by Georgia Power Company (GPC), Pullman Power Products (PPP), and Nuclear Installation Services Company (NISCO). Records sampled during this review were limited to GPC records. Audits relating to measuring and test equipment (M&TE) of each of the programs were reviewed and findings examined. The detail and depth of the audit working checklists were reviewed for GPC and the two contractor programs.

6. Evaluation

a. Section G.1 - Scope

This section discussed the boundaries to which M&TE was evaluated by the RRS. This appendix provided a description and evaluation of the programs governing the control of M&TE utilized during the construction activities of the Vogtle Electric Generating Plant (VEGP). The M&TE programs for GPC, PPP, and NISCO were described and evaluated. Other onsite contractors utilized GPC's calibrated equipment for determining inspection acceptance of construction activities. The Nuclear Operations M&TE program is addressed in Module 7. The time period involved in this evaluation was from early 1977 to December 31, 1985.

This section was reviewed for background information only. No followup or evaluation of this section was required.

b. Section G.2 - Responsible Organizations

This section described the various construction organizations responsible for M&TE activities within the scope of this appendix. GPC had overall quality responsibility for work performed at VEGP including the M&TE program. PPP products and NISCO each maintained M&TE programs

which were reviewed by the GPC QA organization. This section also identified contractors which utilized the GPC calibrated equipment.

This section was reviewed for background information. No followup or evaluation of this section was required.

c. Section G.3 - Commitments and Implementation

This section contains the licensing and project commitments and the corresponding documents which implement these commitments. It was noted by the inspector that the commitment relating to records and documentation was inconsistently addressed in the implementing documentation. This commitment was also addressed in Appendix D, QA Records and Document Control. This deficiency will be discussed in the evaluation section of this report. The RRS reviewed the historical file of project procedures (summarized in the Implementation Matrix) to determine whether applicable commitments were contained within the programs. Although all commitments appeared to be addressed, the inspector noted implementation references which did not adequately address an associated commitment. This issue will be discussed in the evaluation section of this report.

Review of this section by the RRS and NRC inspectors identified that Vogtle's licensing commitments and implementing documents comply with the FSAR Regulatory Guides and industry codes and standards.

d. Section G.4 - Program Description

This section of the appendix provided a description of three M&TE programs used on site, GPC, PPP, and NISCO. It also provided a description of the procurement method for calibration services and equipment from approved vendors. The present procurement method for M&TE appears adequate even though these services had previously been procured from unapproved vendors. Discussion of this finding (RRF 21-15G) and resolution involving evaluation and program changes are detailed in the verification section of this report. The M&TE control program includes the following activities:

- Procurement of calibration equipment and services
- Equipment control and tracking
- Calibration and recalibration
- Out of calibration reporting and resolution
- Storage of documentation

The inspector noted that activities involving record storage were referred to the QA record storage procedure for the present program and they were not addressed in the Revision 0 procedures. Activities not

adequately addressed in initial procedure revisions were generally identified as audit findings and incorporated into later revisions.

Implementation of these programs requires further review by the inspector. One noted deviation from the program descriptions was that all calibrations on site, including those for PPP and NISCO, will be performed by GPC, who will also be responsible for all site reference standards. This program change was to be incorporated at the end of May, 1986. The onsite M&TE programs in effect at the date of this inspection (May 12-18) appear adequate and conform to the description of Section G.4.

e. Section G.5 - Audits

This section contained a review of the various audits and evaluations conducted by GPC and NRC Inspection and Enforcement personnel and a self-initiated evaluation (SIE) performed by off-project personnel from GPC, Southern Company Services, and Bechtel Power Corporation. Thirty-eight findings were noted. Six findings resulted in changes to procedures and one significant finding identified untimely recording of nonconformance reports (NCR) at PPP associated with out-of-calibration M&TE. The inspector did not identify significant findings contained in the audits which were not previously addressed in the appendix, therefore, this section represented accurate presentation of the deficiencies identified against the audit program.

f. Section G.6 - Program Changes

M&TE procedures have been subjected to various changes as the project design and construction process accelerated and the volume of calibration equipment and usage increased. These changes were required to provide better guidance for M&TE issue, control, and tracking. Internal reviews, NRC inspections, and QA audits identified weaknesses in program implementation . Corrective action for these weaknesses provided tighter equipment inventory control and improved guidelines for reporting and evaluating activities associated with identified out-of-calibration equipment. Review of the changes indicated M&TE program enhancements with no reduction in commitments.

g. Section G.7 - Verification of Project M&TE Control Program

This section describes the Readiness Review process for M&TE program verification during the VEGP construction phase. The purpose of the verification was to determine whether procedures and practices in use at VEGP have met project commitments in this area.

(1) Commitments and Implementation

The appendix appeared to adequately list all commitments which supported an acceptable calibration program. Additionally, commitment implementation was generally adequate. The following

inconsistencies or inaccuracies were identified by the inspector, most of which involved the earlier, Revision 0 procedures:

(a) Commitment 2911.01-07 Records and Documentation

The implementation matrix references GD-A-04 Calibration and Control, Revision 0, Section 9.1.10, for GPC. This section does not exist in this revision. Section VI, Revision 0, delineates that calibration certification be forwarded to the document control supervisor. Further reference is not made to record storage, indexing, identification, etc.

The implementation matrix for PPP references M&TE procedure XII-2, Calibration of Tools, Measurements and Test Equipment, dated 2/12/79, Section 10.3, as implementing this commitment on records and documentation. This section does not exist in the procedure. Additionallly, Section 3.3.1 requires an equipment calibration record, Form 33, shall be maintained. This does not meet the extent of the commitment listed in the matrix. A revision dated July 19, 1982, references procedure XVII-1, QA Records, which would satisfy this requirement. This records procedure was effective during the June 1979 period but was not referenced in the M&TE procedure.

In both cases (GPC and PPP) adequate controls existed for calibration documentation in QA records procedures effective during this time period although not accurately addressed in the implementation matrix. The QA records control commitment, ANSI N45.2.9, Draft 11, Revision 0, was addressed more adequately and appropriately in Appendix D of Readiness Review, Document Control.

(b) Commitment 4961.0, Identification of Types of M&TE Controlled by Each Procedure

The GPC matrix references GD-A-04, Calibration and Control, Sections III.C.1 and V.B.1 for Revision 0. Section III.C.1 requires a supervisor to submit to Document Control Center (DCC) a list of all M&TE used by his personnel. Section V.B.1 references an inventory control log which identifies all M&TE utilized by construction. The most recent revision of GD-A-04 references Section 5.4.1.8 (Revision 11) requiring that a calibration procedure be assigned for all new M&TE if available, or one written. This implies interpretation of this commitment to be both generic and specific. In the earlier revision, all equipment controlled by the general M&TE procedure, GD-A-04, were listed. The current revision implies identification of specific calibration procedures for each piece of equipment.

Discussions with readiness review personnel resulted in a generic interpretation which was implemented by the scope (Section 1.0) of each procedure. For example, in the earlier revision, the scope states that the procedure establishes and defines methods... for all M&TE used for testing, inspecting, and maintaining safety related structures of nuclear power plants. The scope becomes more definitive as GD-A-04 (for GPC) is revised, to the point of M&TE used to verify conformance to design specification requirements for Units 1 and 2. If the generic interpretation is accepted, then Section 1.0, Scope, should be referenced and consistently interpreted through all procedure revisions.

The procedures for PPP and NISCO have similar discrepancies with regard to this commitment. The later revision of PPP procedure XII-2 refers to specific calibration instructions for individual M&TE while the referenced section in the earlier revision does not address the commitment. The NISCO M&TE procedure, ES-140, Calibration and Control of Measuring and Test Equipment, is consistent in that it does not address this commitment in either the earlier or later revision sections referenced.

(c) Commitment 4962.0 Calibration Procedure Used for Each Type of M&TE

The PPP implementation matrix references the M&TE Procedure, XII-2 dated February 12, 1979, section 6.2.D. This section does not exist in this procedure. Section 4.0 of this procedure lists specific calibration requirements for M&TE but no calibration procedures were in use at the time.

In conclusion, the inaccuracies and inconsistencies noted above do not appear to represent a significant program failure nor compromise the quality of the VEGP M&TE usage during plant construction. Document control and QA records procedures identified calibration reports as QA records and provided adequate controls. Equipment calibrations were performed with the manufacturer's instructions and requirements specified in their procedures. Deficiencies in initial procedures revisions were identified and commitments adequately met in the most recent procedures.

(2) RRS Findings and Corrective Actions

The inspector's examination of the 22 findings determined that they appeared to be properly categorized and the proposed resolutions to these findings were satisfactory. The majority of the RRS findings were Level III findings which were violations of project procedures with no safety concerns. Three Level II findings, those which violated licensing commitments or

engineering requirements with no safety concerns, were examined by the inspector to assure that corrective actions appeared adequate. No Level I findings, those with safety concerns, were identified in this appendix.

Finding G.2, Level II, addressed a lack of traceability to the National Bureau of Standards (NBS) for electrical termination tools from AMP Products Corporation. The licensee identified the cause of this failure and performed an expanded sample of M&TE to identify any other existing traceability discrepancies. Further discrepancies were not identified. The AMP corporation provided documentation establishing specific tool traceability designated by this finding.

Finding G.3, Level II, identified inadequate calibration instructions for some M&TE. These instructions did not state how to perform the calibration. A 100 percent review by GPC of onsite calibration instructions resulted in revisions to 67 of 172 calibration instructions. The inspector reviewed a sample of calibration instructions and determined these instructions appeared adequate to perform calibrations. Review of calibration reports, by the inspector, identified that there were no deficiencies in previous calibrations with regard to correct reference standards utilized. The project response to this finding appeared adequate.

Finding G.15, Level II, addresses procurement of calibration services from unapproved vendors. An initial review, identified 101 vendors whose qualifications were questionable. Ten of these vendors were on supplier listings. The remaining vendors or equipment were evaluated and placed in the following categories:

- Category C - Suppliers not evaluated, equipment calibrated by these suppliers has been recalibrated by a qualified supplier or GPC. Recalibration certificates include "as received" conditions of equipment thus eliminating the need to qualify the original calibrator.

- Category D - Suppliers evaluated by an audit performed by BPS Quality Lead Auditors. Audit based on applicable elements of 10 CFR 50, Appendix B.

- Category E - Suppliers did not require evaluations. Bases for this category includes:

    - Supplier did not perform calibration
    - No "Q" Application
    - Federal/State Agency

The inspector reviewed the equipment calibration records of ten of the vendors identified in Category C, or approximately 25 percent of this category. Of these ten, three were dispositioned other than as stated in the response. These inaccuracies did not compromise the work performed by this equipment but did indicate a need for the licensee to reexamine the data in this category. Examples of these discrepancies are as follows:

(a) Consolidated Devices was dispositioned as recalibrated by GPC. Records indicate these torque wrenches were not used onsite. After several attempts to calibrate the wrenches and repeated inability to accurately calibrate, these wrenches were released for availability offsite.

(b) E. Phil Harris was dispositioned as recalibrated by Gage Labs, Inc. No documentation were identified in the records of a Gage Lab calibration. This three foot survey rod was broken with no recalibration possible.

(c) Thread Forms, Inc. was dispositioned as recalibrated by Pittsburg Testing Labs (PTL). These plug thread gages were recalibrated by Gage Labs, Inc. according to calibration certificates on file.

In Category D, the inspector reviewed 17 of 28 audit reports which qualified vendors. Of 33 audits performed, 5 were rejected and required Category C disposition. The audit group based acceptance on two requirements. Possession of either requirement qualified a vendor in this category. The first factor was the identification of an establish vendor QA program at the time of procurement of equipment or services. The second requirement was verifiable traceability to the NBS. The traceability factor required certifications of traceability for the individual equipment or service.

Some vendors had no documented QA program but present practices were evaluated by a checklist of items which, if satisfied, would indicate an adequate, controlled, calibration program. Determination of adequately controlled calibration programs currently utilized by the vendors provided a degree of reenforcement for qualifying vendors within this category.

The root cause for this use of unapproved vendors was attributed to a discrepancy between the GPC field procedure GD-A-04, and the Vogtle Procurement Policy and Procedure Manual (VPPPM). The field procedure required calibration vendors to be on a Qualified Supplier List (QSL) and the VPPPM did not. The VPPPM Revision 3, incorporates requirements for M&TE vendors supplying calibration to be on an approved vendor list. The corrective measures appeared adequate to prevent reoccurrence of this issue. This inspector reviewed a sample of purchase orders for M&TE or

services since corrective actions were initiated. All M&TE vendors in this sample were on the approved vendors list. Based on the review of calibration reports and audits, the inspector did not identify any impact on safety related equipment as a result of this finding. Additionally, corrective action appeared adequate to preclude reoccurrence.

No violations or deviations were identified.