Georgia Power Company
Post Office Box 4545
Atlanta, Georgia 30302
Telephone 404 526-6526

Southern Company Services, Inc.
Post Office Box 2625
Birmingham, Alabama 35202
Telephone 205 870-6011

Georgia Power
Southern Company Services

D. O. Foster
Vice President and General Manager
Vogtle Project

November 14, 1983

United States Nuclear Regulatory Commission
Office of Inspection and Enforcement
Region II - Suite 3100
101 Marietta Street
Atlanta, Georgia 30303

File: X7BG10
Log: GN-282

Reference: 50-424/83-13, 50-425/83-13

Attention: Mr. R. C. Lewis

Gentlemen:

The Georgia Power Company wishes to submit the following information concerning the violations discussed in your inspection report 50-424/83-13 and 50-425/83-13.

Violation 50-424/83-13-01, "Failure to Follow Installation and Inspection Procedures for Pipe Supports" - Severity Level IV

(1) Georgia Power Company acknowledges the discrepancies described in this violation.

(2) The reasons for the violation are as follows:
   a. Insufficient emphasis was placed on pipe support installation and inspection activities as opposed to piping activities.
   b. The specification for pipe support installation contains confusing and conflicting information in acceptance criteria.
   c. The piping contractor's (Pullman Power Products) training program did not thoroughly cover all aspects of pipe support installation.

(3) The following remedial actions have been/are being taken:
   a. Pullman Power Products (PPP), the piping contractor, is performing a total reinspection of category I supports. All discrepancies will be identified and resolved through the use of nonconformance reports.
   b. PPP also reinspected a sample of previously accepted non-category I supports and, due to the large number of discrepancies identified, has deemed all supports unacceptable, except those found to be acceptable in the sample reinspection. The non-category I supports deemed unacceptable were returned to construction for rework in the normal work cycle and will be inspected as rework is completed.

(4) Actions taken to avoid further violations are as follows:
   a. The pipe support installation specification has been reviewed and revised to clarify acceptance criteria.

b. Pipe support installation and inspection procedures have been reviewed and revised to incorporate the specification changes.
c. An extensive retraining program was conducted for Quality Control inspectors, craft personnel, engineers, and supervisors involved with pipe support work to identify and correct any misconceptions and to orient these personnel to changes in procedures and the specification.

(5) All corrective actions are expected to be completed and full compliance with regulatory requirements achieved by January 15, 1984.

Violations 50-424/83-13-02 and 50-425/83-13-01, "Failure to Implement Procedures and Drawings or Provide Appropriate Acceptance Criteria" - Severity Level IV

(1) Georgia Power Company acknowledges the discrepancies described in this violation.
(2) The reasons for the violation are as follows:
a. Procedures and specifications were inadequate in addressing potential gaps between the concealed face of a concrete wall and the adjacent face of a surface mounted plate in the determination of anchor bolt embedment.
b. Procedures and specifications were inadequate in providing guidance to avoid the violation of minimum spacing and minimum concrete edge distances by concrete expansion anchors specified in design drawings after field-located anchors are installed.
(3) & (4) The following actions have been/will be taken to clarify procedures and specifications and thereby avoid unsatisfactory installation of concrete expansion anchors:
a. Specification X2AP01, Section C9.7 was reviewed and revised to ensure that, in instances where engineering-located anchors are installed after field-located anchors and deviate from the minimum spacing and edge distance requirements, the field will notify engineering for an appropriate disposition.
b. The specification was also revised to require that any gaps that may exist between the base plate and concrete surface be considered in determining the required embedment of concrete expansion anchors.
c. Georgia Power Company and contractor field procedures will be revised to incorporate and implement the specification changes. Involved personnel will be oriented to specification and procedure changes.

(5) All corrective action is expected to be completed and full compliance with regulatory requirements achieved by December 30, 1983.

Violations 50-424/83-13-03 and 50-425/83-13-02, "Failure to Store Records on Shelving" - Severity Level V

(1) Georgia Power Company admits that radiographs were stored in cardboard boxes on the floor of the QA record vault.
(2) The reasons for the violation are as follows:
a. At the time of the inspection an independent agency was performing a 100% reinterpretation of radiographic film for Georgia Power Company as part of the engineering evaluation of a potential significant deficiency which had been reported the USNRC. The film observed by the USNRC inspector was temporarily being stored on the floor to avoid mixing reviewed and unreviewed film.
b. Georgia Power Company normally stores all radiographic film on steel shelving.

(3) When the violation was detected, immediate action was taken to remove the boxes of radiographs from the floor and place them on pallets and tables.
(4) QA Records Vault personnel were made aware of the violation and were given direction relative to the proper storage of QA records. The QC Document Review Supervisor will monitor all shipments of radiographs to ensure proper storage.
(5) All corrective action was completed and full compliance with regulatory requirements was achieved on June 28, 1983.

Violation 50-424/83-13-04, "Failure to Obtain Design Approval for Issuance of a Field Memo that Changed Acceptance Criteria" - Severity Level V

(1) Georgia Power Company denies the alleged violation. The field memo in question was dated June 9, 1983, and addressed two areas of pipe support weld inspections:
   a. A temporary hold point was established for the inspection of pipe support fit-up to structural members.
   b. QC inspectors were instructed to reject fillet and flare bevel welds made after June 6, 1983, which were oversized by more than 1/8" for welds less than 3/4" and by more than 1/4" for welds greater than 3/4".

   The project was experiencing some problems in pipe support fit-up to structural members. A temporary hold point in the inspection process was established to instill good work practices among the craftsmen. The hold point was to be removed when adequate confidence had been gained in craftsmen performance. The establishment of temporary hold points is a QC practice designed to eliminate trends in poor workmanship and does not require A/E approval or procedural control.
   Another trend being experienced by the project was excessively oversized welds in pipe support installations. Controlling oversized welding has no adverse impact on design intent but improves quality by eliminating excessive heat input to welds and base metal. Excessive oversizing of welds adds unnecessary costs to the construction effort. The memo did not violate any code, specification, or procedure. It merely provided guidelines to inspectors in determining how much oversizing is considered excessive and informed craft supervisory personnel of what the QC inspectors would be using as a guide.

This response contains no proprietary information and may be placed in the NRC Public Document Room upon receipt.

Yours truly,

D. O. Foster

REF/DOF/skr

xc: U. S. Nuclear Regulatory Commission
Attn: Victor J. Stello, Jr., Director
Office of Inspection and Enforcement
Washington D. C. 20555

xc:	R. J. Kelly	D. E. Dutton	J. A. Bailey	L. T. Gucwa
	R. E. Conway	W. F. Sanders	O. Batum	M. Malcom
	G. F. Head	R. H. Pinson	H. H. Gregory	B. Bockhold
	J. T. Beckham	B. M. Guthrie	C. W. Hayes	P. D. Rice
	D. N. MacLemore	R. A. Thomas	E. D. Groover	J. L. Vota

Yellow

OCT 14 1983

Georgia Power Company
ATTN: Mr. R. J. Kelley
Executive Vice President
P. O. Box 4545
Atlanta, GA 30302

Gentlemen:

SUBJECT: REPORT NOS. 50-424/83-13 AND 50-425/83-13

This refers to the special Regional Construction Assessment Team Inspection conducted by Mr. V. L. Brownlee of this office on June 21 - July 20, 1983, of activities authorized by NRC Construction Permit Nos. CPPR-108 and CPPR-109 for the Vogtle facility. Our preliminary findings were discussed with yourself and other members of your staff on June 30, and with Messrs. W. T. Nickerson, Manager Generating Plant Construction-Nuclear, and H. H. Gregory, III, Project Construction Manager, on July 20 at the conclusion of the inspection.

Areas examined during the inspection and our findings are discussed in the enclosed inspection report. Within these areas, the inspection consisted of selective examinations of procedures and representative records, interviews with personnel, and observations by the inspectors.

During the inspection, it was found that certain activities under your license appear to violate NRC requirements. These items and references to pertinent requirements are listed in the Notice of Violation enclosed herewith as Appendix A. Elements to be included in your response are delineated in Appendix A.

One new unresolved item resulted from this inspection and is discussed in the enclosed report. This item will be examined during subsequent inspections.

In accordance with 10 CFR 2.790(a), a copy of this letter and the enclosures will be placed in the NRC's Public Document Room unless you notify this office, by telephone, within ten days of the date of this letter and submit written application to withold information contained therein within thirty days of the date of this letter. Such application must be consistent with the requirements of 2.790(b)(1).

The responses directed by this letter and the enclosures are not subject to the clearance procedures of the Office of Management and Budget as required by the Paperwork Reduction Act of 1980, PL 96-511.

DF
8403050377

Should you have any questions concerning this letter, we will be glad to discuss them with you.

Sincerely,

R. C. Lewis, Director
Division of Project and
Resident Programs

Enclosures:
1. Appendix A, Notice of Violation
2. Inspection Report Nos. 50-424/83-13 and 50-425/83-13

cc w/encls:
H. H. Gregory, III, Project Construction Manager
E. D. Groover, QA Site Supervisor
D. O. Foster, Project General Manager
G. Bockhold, Jr., Plant Manager

bcc w/encls:
NRC Resident Inspector
Document Management Branch
State of Georgia

RII	RII	RII
VLBrownlee:jw	HCDance	RCLewis
9/11/83	9/11/83	9/11/83

APPENDIX A

NOTICE OF VIOLATION

Georgia Power Company
Vogtle 1 & 2

Docket Nos. 50-424 and 50-425
License Nos. CPPR-108 and CPPR-109

As a result of the inspection conducted on June 21 - July 20, 1983, and in accordance with the NRC Enforcement Policy, 47 FR 9987 (March 9, 1982), the following violations were identified.

A. 10 CFR 50, Appendix B, Criterion V, as implemented by PSAR Chapter 17, Section 17.1.5, requires that activities affecting quality shall be accomplished in accordance with instructions, procedures, or drawings.

Contrary to the above, activities affecting quality were not being accomplished in accordance with documented instructions, procedures, or drawings in that discrepancies with respect to weld size, dimensions, tolerances and inadequate information on design drawings were identified during the inspection of four pipe supports that had been previously inspected and accepted by the hanger QC inspectors.

This is a Severity Level IV violation (Supplement II). This violation is applicable to Unit 1 only.

B. 10 CFR 50, Appendix B, Criterion V, as implemented by PSAR Chapter 17, Section 17.1.5, requires that activities affecting quality be prescribed by documented instructions, procedures, or drawings of a type appropriate to the circumstances, and be accomplished in accordance with these instructions, procedures or drawings. Furthermore, appropriate quantitative or qualitative acceptance criteria is required to be included within those documents for determining that important activities have been satisfactorily accomplished.

Contrary to the above, in the instances cited below, the licensee failed to implement procedures and drawings or provide appropriate acceptance criteria:

1. GPC has failed to provide adequate control measures to prevent modifications to or removal of structural steel members after the structural steel had been installed and accepted by QC inspectors. This was evidenced by quality records which indicated that structural steel beams and cross braces at connection numbers 117, 119, 120, 121, 122 and 124 on elevation 197.5 and at connection numbers 56, 58, 59, 60, 223 and 224 on elevation 210 had been installed, inspected and accepted by QC when, in fact, field walkdown inspections and discussions with QC inspectors disclosed that these members had been removed without control to allow access to install piping and equipment.

2. The visual inspection by the inspectors of 7/8 inch diameter bolts for connection members 123 and 206 in the elevation 180 floor framing structural steel was not accomplished in accordance with the requirements of GPC Procedure CD-T-16 in that QC inspectors did not verify that these bolts were double nutted as required by connection details shown on the design drawings.

3. GPC Inspection Procedure CD-T-16 appears to be inadequate in that it does not contain instructions which require checking that beam size (type) and location are installed in accordance with details shown on the design drawings. This was evidenced during review of inspection forms that disclosed numerous forms where the data had been omitted.

4. Specification and procedures for concrete expansion anchor installation and inspection do not contain instructions or acceptance criteria for:

   (a) Verifying that concrete expansion anchors installed at locations shown on design drawings comply with design and manufacturer's installation criteria for minimum distance to concrete edges, minimum distance to previously installed field located expansion anchors, and/or minimum distances to support elements embedded in concrete.

   (b) Verifying that the baseplate (i.e., baseplate installed with concrete expansion anchors) to concrete surface gaps are considered in determination of concrete expansion anchor embeddment depth.

This is a Severity Level IV violation (Supplement II). This violation is applicable to Units 1 and 2.

C. 10 CFR 50, Appendix B, Criterion XVII, as implemented by PSAR Chapter 17, Section 17.1.2, "Quality Assurance Program" which endorses ANSI N45.2-1973, "Requirements for Collection, Storage and Maintenance of Quality Assurance Records for Nuclear Power Plants" (Draft 11, Rev. 0, March 1973) requires that records be stored on shelving in containers.

Contrary to the above, on June 28, 1983, several boxes of radiographs were being stored in cardboard boxes on the floor in the vault.

This is a Severity Level V violation (Supplement II). This violation is applicable to Units 1 and 2.

D. 10 CFR 50, Appendix B, Criterion III, as implemented by PSAR Chapter 17, Section 17.1.3, requires that design changes, including field changes, shall be subject to design control measures commensurate with those applied to the original design and be approved by the organization that performed the original design unless the applicant designates another responsible organization.

Contrary to the above, a memo dated June 3, 1983, relative to weld acceptance criteria was generated by the subcontractor QA/QC management and distributed to the QC inspection personnel without the review and approval of the responsible A/E.

This is a Severity Level V violation (Supplement II). This violation is applicable to Unit 1 only.

Pursuant to the provisions of 10 CFR 2.201, Georgia Power Company is hereby required to submit to this office within thirty days of the date of this Notice, a written statement or explanation in reply, including: (1) admission or denial of the alleged violations; (2) the reasons for the violations if admitted; (3) the corrective steps which have been taken and the results achieved; (4) corrective steps which will be taken to avoid further violations; and (5) the date when full compliance will be achieved.

Date: OCT 14 1983

UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION II
101 MARIETTA STREET, N.W.
ATLANTA, GEORGIA 30303

Report Nos.: 50-424/83-13 and 50-425/83-13

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

Docket Nos.: 50-424 and 50-425

License Nos.: CPPR-108 and CPPR-109

Facility Name: A. W. Vogtle Nuclear Plants 1 and 2

Inspection at Vogtle site near Waynesboro, Georgia

Inspectors: Virgil L Brownlee — V. L. Brownlee — 10/11/83 Date Signed

John F Rogge for — W. F. Sanders — 10/11/83 Date Signed

L H Jackson — L. H. Jackson — 10/1/83 Date Signed

W C Liu — W. Liu — 10/11/83 Date Signed

A. B. Ruff — A. B. Ruff — 10/11/83 Date Signed

J J Lenahan — J. J. Lenahan — 9/30/83 Date Signed

Approved by: H C Dance — H. C. Dance, Chief, Project Branch No. 2, Division of Project and Resident Programs — 10/11/83 Date Signed

SUMMARY

Inspection on June 21 - July 20, 1983

Areas Inspected

This special Regional Construction Assessment Team Inspection involved 400 inspector-hours on site in the areas of project management, construction management, Quality Assurance managment, procurement, mechanical construction activities, design controls, electrical construction activities, civil construction activities, welding, and nondestructive examination activities.

Results

Of the ten areas inspected, no violations or deviations were identified in six areas; one violation was found in each of four areas (Failure to implement control documents relative to pipe supports (paragraph 5.e); Failure to implement procedures and drawings or provide appropriate acceptance criteria relative to structural steel and concrete expansion anchors (paragraph 5.h); Storage of radiographs (paragraph 5.d); Design control-acceptance criteria memorandum (paragraph 5.e)).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

*R. J. Kelly, Executive Vice President
*D. O. Foster, Vice President and General Manager
**W. T. Nickerson, Manager, Generating Plant Construction-Nuclear
**H. H. Gregory, III, Project Construction Manager
*P. D. Rice, General Manager, Quality Assurance and Radiological Health and Safety
*C. W. Hayes, Project QA Manager
**E. D. Groover, QA Site Manager
**R. W. McManus, Manager, Quality Control
D. H. Evans, Assistant to Vice President and General Manager
*G. Bockhold, Plant Manager
*F. P. Castrichini, Manager, Schedule and Budgeting
*L. N. Brooks, Project Section Supervisor (Civil)
*D. M. Fiquett, Manager, Construction Field Operations
*M. H. Googe, Assistant Project Construction Manager
H. P. Walker, Assistant Plant Manager-Power Generation
J. L. Blocker, Assistant Manager, Quality Control
S. D. Haltom, QA Engineering Support Supervisor
*B. C. Horbin, Manager, Engineering Support
*C. S. McCall, Construction Supervisor
*T. L. Weatherspoon, Assistant Manager, Quality Control
R. S. Pooni, Assistant, Project Section Supervisor
*J. O. Dorough, Manager of Administration Operations

Other Organizations

Southern Company Services

*O. Batum, Project Manager, Engineering and Licensing
J. A. Bailey, Project Licensing Manager

Bechtel Power Corporation

*W. C. Uhouse, Resident Engineer "N" Stamp
*J. B. McLachlan, Project Field Engineer

Contractors On-Site

*T. H. Griffin, Project Manager, Pullman Power Piping (PPP)
*J. P. Runyan, QA/QC Manager, PPP
*N. A. Griffin, Project Manager, Ingalls Steel
*J. R. Blount, Project Manager, Cleveland Electric
F. R. McCarty, Project Manager, Walsh Construction Company

Other licensee employees or contractor personnel contacted included approximately 30 engineers, construction supervisors, and foremen; 49 construction craftsmen; 40 technicians; 75 QC personnel; and 15 office personnel.

*Attended the exit interview on June 30, 1983.
**Attended the exit interview on June 30 and July 20, 1983.

2. Exit Interview

The inspection scope and findings were summarized on June 30 and July 20, 1983, with those persons indicated in paragraph 1 above. The licensee acknowledged the inspection findings. The following items were specifically discussed with the licensee.

Violation 50-424/83-13-01, Failure to follow installation and inspection procedures for pipe supports (paragraph 5.e).

Violations 50-424/83-13-02 and 50-425/83-13-01 (2 examples), Failure to implement procedures and drawings or provide appropriate acceptance criteria (paragraph 5.h).

Violations 50-424/83-13-03 and 50-425/83-13-02, Failure to store records on shelving (paragraph 5.d).

Violation 50-424/83-13-04, Failure to obtain design approval for issuance of a field memo that changed acceptance criteria (paragraph 5.e).

Unresolved Items 50-424/83-13-05 and 50-425/83-13-03, Verification of expansion anchor design values (paragraph 5.h).

Inspector Followup Items 50-424/83-13-06 and 50-425/83-13-04, Shelf life program (paragraph 5.d).

Inspector Followup Item 50-424/83-13-07, Weld acceptance criteria for hanger inspection (paragraph 5.e)

Inspector Followup Items 50-424/83-13-08 and 50-425/83-13-05, GPC Audit EDO1-83/26 - Item concerning design drawings for cable tray supports (paragraph 5.g).

Inspector Followup Items 50-424 and 50-425/83-11-04 is closed (paragraph 5.h).

3. Licensee Action on Previous Enforcement Matters

Not inspected.

4. Unresolved Items

Unresolved items are matters about which more information is required to determine whether they are acceptable or may involve violations or deviations. New unresolved items identified during this inspection are discussed in paragraph 5.h.

5. Regional Construction Assessment

a. Project History and the Management of the Project, Construction and Quality Assurance

Project History

The original planning and permitting for plant Vogtle located approximately 40 miles south of Augusta, Georgia, was for four 1160 MW PWR Units. The Construction Permits were obtained in June of 1974. The project was suspended and the third and fourth units cancelled in late 1974. The project was reactivated in 1976 and the first Safety-Related concrete was placed in 1978. The major participants in this project are: 1) The Southern Company (SC) is the parent firm of the GPC; 2) GPC is the licensee, manager of construction and operator; 3) Westinghouse (W) is the NSSS; 4) Bechtel Power Corporation (Bechtel) is the primary A/E; 5) Southern Company Services (SCS) has some non-nuclear A/E scope of work assigned in addition to providing licensing, QA, fuel services and several other management services; 6) the Units are jointly owned by GPC, Oglethorpe Power Corporation (OPC), Municipal Electric Authority of Georgia (MEAG) and the City of Dalton, Georgia.

Project Management

GPC has developed and implemented a project management philosophy and organization in which the various groups participating in the project report to one individual for direction in completing the project in addition to reporting to their individual department heads for technical and administrative support. The Project Executive reports to a Project Management Board (PMB) made up of senior executives from each major participant of the Project. The PMB consists of top management from GPC, SCS, Bechtel, Westinghouse and the co-owners of the plant. The PMB is chaired by the Chairman and Chief Executive officer, GPC.

The PMB meets on a monthly basis. Senior management reviews the engineering status of the project with Bechtel and Westinghouse's top management on a quarterly basis. Top project management personnel conduct routine project review meetings to discuss progress, resolve conflicts and provide project direction. Many of the top project management personnel are executives and/or managers of both GPC and SCS.

Construction Management

GPC acts as the general contractor for the construction of plant Vogtle. The Construction Project Manager (CPM) reports to the Vice President and Project General Manager for project direction and to the Manager, Generating Plant Construction Nuclear for technical direction. The CPM directs a staff of over 900 GPC employees at the site. At the time of the inspection, there were approximately 8,800 site personnel, including GPC and contractors engaged in construction activities carried out with 4 shifts virtually on a 24-hour-a-day, 7-day-a-week basis. The CPM has total responsibility for the planning, scheduling, budgeting, and completion of construction activities by the various subcontractors as well as for training, safety, quality control, field procurement, warehousing, documentation, etc., associated with construction. Reporting to the CPM are several Assistant Construction Project Managers (ACPM). The ACPM's for field operations direct field activities through several discipline managers (civil, mechanical, electrical, welding, survey, etc.). These responsibilities include the implementation and coordination of subcontractor activities, ensuring that the contractors have accurate, up-to-date design/erection drawings, coordinating the use of equipment and materials, procurement of needed equipment/supplies, and document control. In addition to the ACPMs, the Manager of Quality Control reports to the CPM. The Manager QC is responsible to ensure that the construction work is accomplished according to applicable codes, regulations, standards, specifications, and design. Activities include inspection, documentation, and verification.

The Summary of Major Contractors is:

Contractors	Work Responsibility	QA/QC Responsibility
Cleveland Electric Contractors	Electric	*GPC
Pullman Power Products	Mechanical (piping)	PPP
Pullman/Kenith Fortson Co.	HVAC	P/KF
Walsh Construction Co.	Civil	*GPC
Ingalls Iron Co.	Steel	*GPC
Research Cottrell Inc.	Cooling Towers	RCI
NISCO, Inc.	NSSS Installation	NISCO
Fundamental Materials, Inc.	Concrete	*GPC
Chicago Bridge & Iron	Steel	CB&I
Williams Contracting	Coatings	WC

*GPC has approximately 250 QC personnel assigned to the site to perform QC functions within the GPC QC scope of work.

Quality Assurance Management

The project QA Program is implemented under the guidance of the Project QA Manager (PQAM). The PQAM receives functional and administrative direction from the General Manager, QA and Radiological Health

and Safety. Project Coordination is provided by the Vice President and Project General Manager. The GPC QA Site Manager and the SCS Project QA Engineer report to the PQAM. In addition, the PQAM coordinates the activities of the Bechtel Project QA Engineer who is responsible for implementation of the Bechtel QA Program. The major functions performed by the QA group include design audits, supplier audits and surveillance, review and approval of vendor/contractor QA manuals and procedures. There are approximately 17 GPC QA personnel assigned to the site.

Inspector Activities

The inspectors held broad discussions with representatives from the major participants of the project. These representatives included top level corporate and site project, construction and QA management; contractor managers; engineering personnel; QA/QC personnel; craft and support activities personnel. The inspectors also inspected the laydown yards, warehousing, major contractor fabrication shops, welder qualification shop, and power block activities. Additionally, the inspectors attended site management meetings, contractor coordination meetings, shift turnover meetings and gangbox meetings.

Conclusion

Based on the numerous discussions with responsible personnel, examination of site facilities and observation of work activities, the inspectors conclude:

(1) It is evident from the corporate office management level to the site functional organizations that there is a sense of commitment to quality. The licensee volunteered to participate in the first INPO construction pilot audit and has expanded on it with their own Self-Initiated Evaluation.

(2) GPC project, construction, and QA management display and give evidence of an organization with experience, understanding and ability to manage a complex nuclear project.

(3) The licensee manages the project and does not place a high degree of reliance on contractors for project management.

(4) Authority and responsibilities are clearly specified and well understood by participating organizations.

(5) The site appears to be well staffed with engineering support, QA representation, QC staffing across the disciplines, craft, and support personnel to accomplish current construction activities. Site facilities are excellent to support construction activities.

(6) All indications are that there is a cooperative and supportive rapport between engineering and craft, engineering and QA, and between the craft and QC.

Within this area, no violations or deviations were disclosed.

b. Management Accessibility to Employees

Availability of Technical Assistance

Discussions were held with craftsmen, inspectors and engineers by all of the NRC inspectors during conduct of this inspection. As described in other sections of this report, the site engineering staff works very closely with construction forces. Problems are approached together in the field and resolutions determined. Construction personnel and inspectors stated that assistance was nearly always within a reasonable period of time.

Site Labor Relations

The inspectors held discussions with several site craft from all shifts and the GPC Site Labor Relations Coordinator (SLRC). The function of the SLRC is to act as mediator (liaison) between the building trades and GPC management regarding grievable concerns. The craft and the SLRC communicated to the inspectors that labor relations on this site appear to be quite good. The two most commonly expressed elements that the craft communicated to the inspectors as to why they were satisfied with this job were: this job is being tightly controlled and we know who is in charge, and they like the 4 shift, 24-hour-a-day, 7-day-a-week work arrangement.

Freedom to Express Opinions and Management Contact

GPC has a management procedure, "Employee Concern Program" which provides all employees, except those covered by a collective bargaining agreement, an avenue to express their concerns. Additionally, GPC letter from Mr. J. H. Miller, Jr., President, dated July 21, 1983, titled, "To All Persons Involved With The Vogtle Project", updates a June 1979 letter regarding notification, expresses that at any time, an individual's observation or they justifiably suspect any work or other operations which are not in accordance with approved procedures, or are contrary to established quality, safety, regulatory requirements, or good engineering practices, they have an obligation to pursue correction. The letter provides the appropriate GPC and NRC contacts.

Harrassment

NRC inspectors discussed with QC inspectors and craftsmen, the possibility that they might be pressured or harassed about rejecting work or into performing poor quality work. Some of those interviewed were amused at the thought of such pressure. None of those talked to felt that such a situation might develop.

Conclusion

In summary, it is the inspectors' opinion from interviews, observations, and review of site and company policies that top management and supervision are available to employees at a very low threshold. It is unlikely that harassment detrimental to quality work could develop under these conditions.

Within this area, no violations or deviations were disclosed.

c. Site QA and Construction QA Program Implementation

General

The purpose of this portion of the inspection was to complete an overall review of implementation of the GPC program for control of site QA and construction activities.

GPC submitted the latest revision of their PSAR, Chapter 17, to NRC on June 10, 1983. The GPC QA program commits to applicable regulatory requirements such as 10 CFR 50, Appendix B and to approved industry standards such as ANSI N45.2-1971. Corresponding daughter standards are committed to in Chapters 3 and 17 of the PSAR.

Documents Examined

(1) Chapter 17 of the PSAR Supplement 9
(2) Corporate QA Manual
(3) Site QA Manual
(4) Site Departments Manuals

QA Program Review

The inspector reviewed the documents listed above and held discussions with responsible corporate and site management, quality assurance (QA), quality control (QC), area engineers, and craft personnel and concluded that GPC QA program and supporting manuals contain the following:

(1) A policy statement from upper management supporting the QA program and objectives.

(2) Adequate definition in the program for control of contractors.

(3) Provisions in QA manuals for interface control between engineering, QA, construction, contractors, design, and procurement.

(4) A listing of commitments to regulatory requirements.

(5) Responsibility for management audits to determine QA effectiveness.

(6) Organizational charts and responsibility matrix are current in the PSAR.

(7) There exists independence of the QA organization from design and construction.

(8) The site QA manager reports directly to the Vogtle QA Manager and has access to upper management.

(9) Stop work requirements are established in the PSAR and implemented by QA procedure QA-05-16 RO.

(10) Job descriptions for management and supervisory personnel are approved by upper management.

(11) Position descriptions define position authority, responsibilities, and interfacing.

QA Program Implementation

By observation of ongoing activities, review of reports, attending meetings, and discussion with personnel at all levels, the inspector concluded that the GPC QA program, supporting manuals, and organizational alignment are consistent with project status and adequate to monitor project activities in an effective manner. Personnel appear knowledgeable of the QA program and procedural requirements. Staffing levels for QA and provisions for temporary increases in personnel due to manpower loadings are considered adequate to accomplish the QA function.

Audits

There is a comprehensive system of audit and surveillance activities which span corporate, departmental, and site contractors activities. The site QA unit performed 146 audits during 1982. There are 126 audits scheduled for 1983, with 39 having been performed through May. Fifty-one surveillances were performed from March through May 1983. Some audits have resulted in stop work orders being issued to prevent unacceptable performance from continuing.

The inspector reviewed 24 audits performed on small and large bore piping from January 1979 through May 1983.

These audits were preplanned to cover specific functions and were very comprehensive. The qualifications of lead auditors were verified to be in accordance with the requirements of ANSI N45.2.23-1978.

Conclusion

As a result of this inspection, the inspector concluded that the interface activities between GPC corporate management, site QA, area engineers, and contractors is very good. It is apparent that management supports the program.

Within this area, no violations or deviations were disclosed.

d. Site Procurement, Receiving, and Storage

General

The safety related equipment or materials received at the site are either NSSS supplied or GPC procured from specifications, requisitions, bid evaluations, and recommendations prepared by Bechtel Power Corporation, the Architect Engineer for Vogtle Nuclear Plant. Site requisitions are primarily for consumables, standard stock items, and replacement items.

Documents Examined

(1) Requisition 169494 Reactor Coolant Pump Cases
(2) Requisition 169494 Reactor Coolant Pump Internals
(3) Requisition 169494 Reactor Coolant Pump Motor
(4) MD-A-03 R3 - Mechanical Section Field Procurement
(5) GD-A-24 R5 - On-Site Procurement Process
(6) MD-T-12 R5 - Receiving Inspection and Storage/Issue of Pipe Piping Components, and Weld Filler Material
(7) GD-A-30 R4 - Receipt, Receipt Inspection, Storage and Handling
(8) DC-A-06 R6 - Review and Control of QA Documentation.

Program Implementation

The inspector examined the above noted requisitions and controlling procedures. Discussions were held with GMQA, VQAM, PQAM, site QA personnel, engineering personnel, warehouse personnel, and site receiving QA inspectors. As a result of these discussions, one inspector follow-up item was identified, in that a shelf life program has not been established for all items. This item is identified as IFI 50-424/83-13-06 and 50-425/83-13-04.

A walk through inspection of the warehouse and storage facilities was performed. The inspector observed issue inspection activities in progress and determined that the contractor was verifying that appropriate documentation was available at the jobsite. The inspector concluded that:

(1) The procurement documents examined included the applicable technical, QA, ASME Boiler and Pressure Vessel Code of record, and 10 CFR 21 requirements.

(2) The applicable specifications were certified by a registered professional engineer.

(3) The procurement documents specify packing, handling, storage, and documentation requirements.

(4) The receiving QC personnel have access to procurement documents.

(5) Site personnel were knowledgeable of site receiving and storage policies, procedures and activities.

(6) Class A, B, C and D storage facilities have been established.

To verify that adequate records were being collected, stored, maintained and were retrievable, the inspector selected the code data packages for the reactor coolant pump for review. The pump casings were furnished by George Fischer Limited of Switzerland to ASME Boiler and Pressure Vessel Code Section III 1974 edition through Winter 1976 addenda. These pump cases are to have the code stress report completed and code name plate applied after field hydrostatic test.

A tour of the records storage vault was conducted on June 28, 1983. The inspector noted that several boxes of radiographic film were being stored in cardboard boxes directly on the floor. Chapter 17 of GPC PSAR commits to Regulatory Guide 1.28 and ANSI N45.2-9-1973, draft 11, Rev. 0, dated 1/17/73.

Based on this inspection, one violation was identified. ANSI N45.2.9 Draft 11, Rev. 0, paragraph 5.4(3) requires records to be stored on shelving in containers. Contrary to the above, radiographic film were not being stored on shelving. The licensee corrected the problem on June 29, 1983. This violation will be recorded as "Failure to store records on shelving" (50-424/83-13-03 and 425/83-13-02).

Conclusion

Based on this inspection, the inspector concluded that GPC has very good control over the storage of equipment and materials. Their warehousing facilities are exceptionally good when compared to most other construction sites.

The fabrication shops are almost all new and being well maintained. Shop orderliness and housekeeping are judged to be excellent. There appears to be adequate equipment available to produce a quality product.

Morale and interaction between GPC and contractor personnel at all levels appear to be very good.

Within this area, one violation was identified as failure to store records on shelving.

e. Mechanical Construction Activities

General

The primary objective of the inspection was to determine the conformance of installed and QC accepted safety-related components and systems to engineering design, regulatory requirements and to licensee commitments. Specific areas evaluated were piping, and pipe support and restraint systems. The secondary objective was to evaluate the adequacy and effectiveness of the licensee's QA/QC program in controlling, inspecting and documenting ongoing and completed work activities in each of these areas. To accomplish the aforementioned objectives, the inspectors performed field inspections of a sampling of the QC accepted pipe support and restraint systems; reviewed work procedures and documentation; and held discussions with the responsible QC and engineering personnel. These discussions served to determine overall knowledge of the site procedures, inspection and acceptance criteria and to identify problems with procedures, design/field engineering/QC interfaces, inspector qualification and QC independence.

Currently, the number of large pipe support installations had reached approximately 5% (871 supports) of the total for Unit 1 and less than 1% for Unit 2 as of June 19, 1983. For small pipe support installations, the number has been less than 1% for both units.

The onsite organization is composed of several engineering offices that are responsible for the various activities of the plant construction. Subcontractor Pullman Power Products (PPP) involves fabrication, field installation, inspection and documentation of pipe support and restraint systems. Bechtel corporation is the architect-engineer and is responsible for the major portion of the plant design. The day to day construction activities are performed under the technical cognizance of area engineers. The containment, auxiliary, control, fuel handling, turbine buildings and other outside facilities each have area engineers assigned. Each area engineer has field engineers to support the construction activities.

The A/E's on-site office, project field engineering (PFE) organization, is the field representative for the home office (Norwalk, CA). The field office goals are to establish a close liaison between project engineering and Georgia Power Company (GPC) field operations and construction, and to expedite resolution of engineering and construction problems. In addition, the Westinghouse Vogtle Structural Analysis Mobile Unit (V-SAMU) is responsible for analysis and design of class 2, 3 and non-nuclear small bore piping systems. The handling of large bore piping systems by the V-SAMU group is limited to resolving field change requests (FCRs). The analysis and design of large bore piping systems and supports, and high energy piping systems and supports are handled by the A/E home office. The A/E's project field engineer provides supervision, review and approval of V-SAMU scope of work.

The control of construction activities is maintained originally by the issuance of specifications and drawings by the A/E. Changes to these drawings or specifications are originated by field engineers on Field Change Requests (FCRs), Field Change Notices (FCNs), Nonconformance Reports (NCRs) and Deviation Reports (DRs). The Georgia Power Company (GPC) field operations is responsible for initiating FCRs, FCNs, NCRs and DRs. The A/E resident engineer will disposition the FCRs, NCRs and DRs. The Westinghouse V-SAMU will perform evaluation of these FCRs, NCRs and DRs. Only FCNs will be dispositioned by the A/E's home office.

VNP Design Control No. 1017 states that the ASME Boiler and Pressure Vessel Code, Section III, provides rules for the construction of nuclear power plant components. Code Class 2 and 3 piping shall be designed to subsections NC and ND of the 1974 Edition, including addenda through summer of 1975. The design of class 1 piping shall be in accordance with subsection NB of the 1977 Edition, including addenda through winter 1977, except that the stress indices and related requirements of subarticles NB-3650 and NB-3680 shall be derived from the summer 1979 addenda. The use of a subsequent code edition/addendum is permissible when requested in accordance with subarticle NA/NCA 1140.

Code classes 1, 2 and 3 component supports shall be designed to subsection NF of the 1974 Edition, including addenda through summer of 1975.

Inspector Activities Relative to Safety-Related Pipe Support and Restraint Systems Program Implementation

In accordance with pipe support specification No. X4AZ01, the applicable code for safety-related support and restraint installation is the ASME Boiler and Pressure Vessel Code, Section III, Subsection NF, 1977 Edition including addenda through winter 1977.

The inspectors reviewed selected procedures; interviewed technical, quality control and craft supervisors; observed work activities; and inspected installed supports to determine if the licensee's program was adequate to ensure that installed supports met the design requirements imposed by the applicable code and the licensee commitments.

Documents reviewed included the following:

Document	Approved Date
Specification No. X4AZ01, Division P5, Pipe Support Field Fabrication and Installation, R8	03/28/83
Procedure IX-50, Pipe Support Field Installation and Fabrication	12/06/82

Procedure X-18, Field Welding Inspection 12/17/82

Design Control No. DC-1017, Stress Analysis Criteria, R1 01/24/83

Personnel Discussions

The project field engineer, resident engineers, and supervisors were interviewed to determine the working relationship between the various groups involved with the design, fabrication, and installation of the supports and piping systems. It was noted that the technical and craft organizations have personnel assigned to specific area of work actvities (i.e., containment building, auxiliary building, etc.), and that the technical personnel in a specific area work closely with the craft personnel assigned to the same area.

The design group (mainly V-SAMU) appears to have established a close working relationship with the A/E (Bechtel) piping system group, construction technical and craft personnel. The design response to field changes is obviously facilitated as a result of good interface between those groups.

The inspectors noted that there appeared to be an obvious cooperative attitude in the interaction between the construction technical, craft and design liaison personnel.

Observation of Work and Work Activities

The inspectors selected a sample of 4 installed pipe supports that had been previously inspected and accepted by the QC. In order to measure the effectiveness of the QC inspection program, these supports were reinspected against their detail drawings for configuration, identification, location, clearances, welding and member size.

(1) Support No. VI-1592-031-H010, Rev. 5, in the essential chilled water system (Auxiliary Building) was examined. It was noted that the welding on top of the member "d" to member "a" had not been properly performed in that up to 1-3/8" fillet weld (one leg only) was applied to the vertical side of the connection. Revision 5 for steel member "d" does not show weld size and weld type at the connection. The only weld size shown on the drawing is 1/4". The 1-3/8" fillet weld is substantially in excess of the specified weld size. Furthermore, the elevation of the installed steel member is greater than the tolerance specified in the procedure, IX-50.

(2) Support No. VI-1592-044-H038, Rev. 3, in the essential chilled water system (Fuel Handling Building) showed that welds connecting structural member "d" to embedded plate are not full penetration welds as required by the detail drawing. The location of the

support from pipe feature is not given. Furthermore, the drawing does not clearly define at what elevation the support should be installed. The weld symbols shown on the drawing do not reflect as-built location and size of welds.

(3) Support No. VI-1202-072-H017, Rev. 2, in the Nuclear Service Cooling Water System (Fuel Handling Building) was inspected. It was found that the shim plate "d" was located off the pipe centerline by 23/32" which is over the allowable tolerance. In addition, elevation for steel member "a" is also over the allowable tolerance.

(4) Support No. VI-1202-099-H005, Rev. 7, in the Nuclear Service Cooling Water System (Fuel Handling Building) was examined. It was noted that the gap between the pipe and the steel member was 0.138". The maximum tolerance for the gap is 0.125". The bottom of pipe elevation was 3/8" different from the elevation called for on the drawing. This would make the elevation over the allowable tolerance. Furthermore, unspecified welds were added at connections between steel member "a" and embedded plates.

Discussion

Discrepancies identified from the above 4 supports indicate that these supports were not installed by the craft in accordance with the design drawings. In addition, the QC inspectors failed to detect and verify the weld size and location, the elevation and gap tolerances, and the inadequate information on the design drawings during the inspections in accordance with procedure IX-50, Pipe Support Field Installation and Fabrication. These are violations of 10 CFR 50, Criterion V, and are identified as Violation, 424/83-13-01, Failure to Follow Installation and Inspection Procedures for Pipe Supports.

During the aforementioned pipe support inspections, the inspectors noted that a memo dated June 3, 1983, had been generated and distributed to the QC personnel for implementation on pipe support inspections. The memo provided weld acceptance criteria that were not based on any A/E's specifications nor any recognized industrial practices. This item indicates that design control measures were not commensurate with those applied to the original design in that the weld acceptance criteria were not in the applicable A/E's specification nor were they approved by the A/E's responsible authority. Furthermore, the acceptance criteria should have been specified in the applicable QC inspection procedure. This item has been discussed in detail with the licensee management and QA personnel, the responsible A/E and the subcontractor management personnel. This is a violation of 10 CFR 50, Appendix B, Criterion III, and is identified as Violation, 424/83-13-04, Failure to Obtain Design Approval for Issuance of a Field Memo that Changed Acceptance Criteria.

One generic phenomenon observed from the four previously inspected pipe supports was the oversize welding. In many cases, the actual welds at the connections were greater than those specified on the design drawings. The specific items with regard to oversize welds had been discussed in detail with the licensee management and QA personnel. The hanger QC inspectors did not identify the oversize welds during their support inspections because there were no acceptance criteria with respect to oversize welds in either the A/E's specification X4AZ01, Division P5, Rev. 8, or Hanger QC procedure IX-50, dated December 6, 1982. Furthermore, the inspectors noted that weld symbols used in Figure 5.6.4-9, (Sheet 1 and Sheet 2) of specification X4AZ01, Division P5, Rev. 8, and Attachments 12, 13 and 24A (Example 3) of procedure IX-50, dated December 6, 1982, are inconsistent with AWS D1.1-79 weld symbol description. It is the understanding of the inspectors, after discussions with the licensee that the above documents will be revised to incorporate the weld oversize acceptance criteria and the weld symbols consistent with AWS requirements. These matters are identified as Inspector Followup Item, 424/83-13-07, Weld Acceptance Criteria for Hanger Inspection.

Containment Spray Piping System, Drawing No. IK-1206-005, Rev. 26, was partially inspected. It was noted that Field Weld 005-W-04 appeared to have 2 sharp ridges on the edge of the cap. Field Weld 005-W-05 showed an arc strike on the cap that was made after the weld was accepted and X-rayed. The licensee stated that these matters will be identified and corrected during the Preservice Inspection (PSI) to be performed at a later date.

During the course of inspections and procedure reviews, approximately 8 field personnel (area engineers, field engineers and QC inspectors) were informally interviewed. It was noted that field engineers were instructed to perform support inspection with respect to design drawings. When a support is accepted by the field engineer, the support will be turned over to the Hanger QC group for final inspection. Normally, the inspection is performed by one person (field engineer or QC inspector). From the inspector's observation and inputs from the field engineers and the QC inspectors, it appears difficult for one man to perform a typical support inspection in terms of measuring dimensions, tolerances, etc., with respect to design drawings.

Conclusions

The interfacing and coordination between the numerous groups (GPC, SCS, BPC, Westinghouse and Pullman) involved in the field design and construction activities appeared to be good. The engineers and QC inspectors in those groups appeared to be knowledgeable in the area of their responsibilities and all appeared to have good positive attitudes toward completing work assignments in accordance with project requirements. However, the inspectors noted that some QC inspectors and field

engineers sometimes appeared to be confused with regard to the interpretation of weld symbols shown on the support design drawings during their inspection.

It is the opinion of the inspectors based on the findings during the support inspections and as supported by the field personnel interviews, that the training programs need to be strengthened and expanded for the construction craftsmen, the QC inspectors, and the field engineers.

Within the areas inspected, two violations were identified relating to failure to follow installation and inspection procedures for pipe supports and failure to obtain design approval for issuance of a field memo that changed acceptance criteria.

f. Design Controls

General

The purpose of this inspection was to review program implementation with emphasis on actual safety-related structures and components as installed in the field, as well as records involving design input and design activities.

Samples were selected in several technical disciplines to check program implementation, and to ensure site procedures, site interface procedures, and design interface procedures satisfy NRC requirements and licensee commitments. Furthermore, a sample of records were reviewed to note how field documents were identified, dispositioned, and the extent to which corrective actions were taken.

The onsite design activities are performed by the A/E's (Bechtel) Project Field Engineering Organization (PFEO). This organization is supervised by the Site Project Engineer who reports to the Vogtle Project Engineering Manager in the Bechtel home office (Norwalk, CA). PFEO has design engineers in the following disciplines: civil/structural, electrical, controls, mechanical, and piping systems. These design engineers report to the site project field engineer. It was noted that there were design engineers from Southern Company Services (SCS) and from Westinghouse (W-SAMU) mingled with Bechtel engineering personnel in the various design groups. The responsibilities of PFEO are to function as an extension of home office engineering with authority to provide necessary coverage on A, B and C shifts; to review, approve, and disposition field change requests (FCRs) and nonconformance reports (NCRs); to issue design change notices (DCNs); to perform pre-installation walkdowns and resolve problems associated with cable tray and HVAC duct supports; to initiate design/specification changes; to perform piping system analysis and pipe support design; and to coordinate design activities between the home office and onsite construction groups.

Review of Procedures and Documents

The inspectors examined procedures/documents for onsite design activities to determine whether these design activities were being controlled as specified in the PSAR and NRC requirements. The following documents associated with design controls were partially reviewed for conformance.

Documents	Approved Date
Design Control No. DC-1005, Seismic-Interdiscipline, Rev. 1	04/04/83
Design Control No. DC-1017, Stress Analysis Criteria, Rev. 1	01/24/83
AX4DR100, Design Guide for Supporting Seismic Category 1 and Non-Seismic Category 1 Small Piping, Rev. 1	10/28/82
PRM Appendix 2, Project Field Engineering Handling of Piping Systems Field Change Requests, Field Change Notices, Non-conformance and Deviation Reports, Rev. 1	05/09/83

During the course of review of the above documents and discussions with the site responsible engineering personnel, it was noted that the seismic inputs with respect to critical damping values used for the current piping system stress analysis were inconsistent with those described in the Preliminary Safety Analysis Report (PSAR - Amendment 13). The licensee provided the inspector with a copy of the current "Draft" FSAR which shows that the applied seismic inputs have been incorporated into the current (draft) FSAR which is to be submitted to NRC for review within the near future (prior to September 1983).

Review of Design Activities

The inspectors examined the on-site design process for three design groups relating to the following areas:

(1) The inspectors had discussions with the design engineering personnel in the pipe support group to determine whether they understood the applicable design control procedures; whether they were able to verify design parameters that were within the design criteria and/or specifications established by the home office; and whether the person doing the design review was independent from the individual who did the design. Furthermore, the inspectors noted that onsite piping system analysis and pipe support design/changes were handled by the Westinghouse V-SAMU group. This group had excellent computer facilities to perform most design/analysis activities resulting from field changes.

Calculations of Pipe Support No. V2-1592-033-H005, Rev. 3, were partially reviewed by the inspectors. It was noted that this typical support analysis was performed by the computer application, a program that was furnished by the Westinghouse Structural Mechanics Department to handle various piping system analysis and pipe support design. The "deflection" criteria were used for all rigid pipe support analysis.

(2) The inspectors had discussions with the engineering personnel in the piping system stress analysis group to determine whether they performed their work activities in accordance with established instructions, procedures and specifications. The seismic response spectra with respect to operating basis earthquake (OBE) and safe shutdown earthquake (SSE) were discussed with the responsible design engineers. It was noted that these seismic response spectra were furnished by the A/E's (Bechtel) home office to Westinghouse V-SAMU group to be used for the piping system analysis. Enveloped values were used for floor response spectra curves that are applicable to the piping system analysis. The following stress analysis packages were partially reviewed with respect to seismic applications and code requirements.

Calculation No.	Fab. Iso. No.	Piping System
X4CP-7176	1K3-1208-213-02, Rev. 10	Chemical Volume Control System
X4CP-7009	1K3-1204-037-02, Rev. 4	Safety Injection System

The inspectors verified the above stress analysis seismic inputs in terms of periods versus accelerations from the corresponding floor response spectra curves under OBE and SSE conditions. The damping values used for seismic input were consistent with that defined in the draft FSAR.

(3) The inspectors had discussions with the civil/structural engineering personnel to determine whether they understood the applicable design control procedures and whether they were able to perform design activities with adequate design controls. The primary function of this group is to review and disposition field change requests (FCRs) to civil/structural drawings and specifications, and to perform minor designs and analysis with respect to field changes. It was also noted that the scope of the work involved with this group was to include a minor design and analysis of HVAC duct supports and cable tray supports with regard to field changes.

Site Design Interface

The inspectors reviewed the site design interface between the A/E's (Bechtel) project field engineer, resident engineer-piping systems group/instrumentation and controls group, and the Vogtle Structural Analysis Mobile Unit (V-SAMU) for piping system field change requests (FCR's), field change notices (FCN's), nonconformance reports (NCR's) and deviation reports (DR's). An FCR was used to verify whether reviewing site design changes were effectively implemented. The piping system FCR, NCR, DR flow chart was reviewed and verified in accordance with each step block described on the chart.

Conclusion

The inspectors observed a computer demonstration conducted by the V-SAMU engineering personnel for a typical piping stress analysis and a pipe support design. The demonstration revealed that the V-SAMU group had excellent computer facilities to handle their daily design activities with regard to computer applications.

The inspectors observed fabrication of pipe supports and pipe welding connections in the pipe fabrication shop (Pullman Power Products). It was noted that the facilities appeared to be good and adequate. The personnel involved with the fabrication appeared to be knowledgeable in the area of their responsibilities.

The inspectors noted that on-site design engineering personnel, in general, had good interface with field construction personnel.

Within the area inspected, no violations or deviations were identified.

g. Electrical Construction Activities

General

The assessment in this area was to determine if safety-related structures, systems, and components were installed and inspected in accordance with NRC requirements and licensee commitments; to determine if Georgia Power Company's (GPC) programs, which includes drawings, procedures, instructions, QA/QC audit/inspections and records, are adequate to accomplish work and related work in this area.

Discussions were held with craftsmen, engineers, and QA/QC personnel to determine their ability and knowledge to carry out their individual responsibilities and to get a feel for their morale and thoughts with regard to GPC's Vogtle project. A craft supervisors' coordinating meeting and two gang box meetings were also attended. Portions of all 4 shifts (A, B, C and D shifts) were covered by the NRC inspector.

These shifts cover the entire week of 7 days as indicated below:

Shift	Days	Times
A	Mon-Thurs.	7:00 a.m. - 5:30 p.m.
B	Mon-Thurs.	5:30 p.m. - 4:00 a.m.
C	Fri-Sun.	7:00 a.m. - 7:00 p.m.
D	Fri-Sun.	7:00 p.m. - 7:00 p.m.

No adverse comments were made by the Vogtle Project employees about the project and from our discussions, it is considered by the NRC inspector that they feel the Vogtle Project is being built, controlled, and inspected satisfactorily to insure a quality product.

Much of the electrical area work is just starting at Vogtle. Raceway supports and raceways are being installed, conduit runs are being made, a very small portion of the total class IE cable pulls have been performed, no cable terminations have been made, and no class IE electrical panels have been permanently installed. A large number of class IE electrical equipment are stored in areas of permanent location and are being maintained in satisfactory condition. Work in the Instrumentation and Control area has not started.

Cleveland Electric Co., a union shop, is the electrical constructor at the Vogtle Project. The construction is performed in accordance with drawings and specification issued by Bechtel Power Corporation. The Georgia Power Company (GPC) is responsible for the Quality Control (QC) inspections of the work performed at the construction site in this area to ensure that it complies with the applicable contracts, purchase orders, specifications, and drawings.

The QC inspectors are trained and use inspection procedures that provide acceptance criteria and outline the manner in which inspections are conducted. These procedures are prepared by GPC's QC and Engineering staff, and are approved by the Project Construction Manager and the appropriate Quality Assurance personnel. Since GPC performs the inspections in this area of work, it is considered that they control the quality of the completed product.

Inspection Efforts

Electrical Conduit and Raceway Systems Including Supports [51063B]

Approximately 650 feet of installed electrical conduit and cable tray systems, including associated supports were examined. This examination, which included a quality record review, was to insure that they were installed in accordance with drawing and specifications. This included identification and verification of correct material, spacing

of supports, configuration and locations, and anchor bolt installation applicable. The following items were inspected.

Support No.	Conduit/Cable Tray No.	Location
TS-380-45 thru 60 TS-380-108, 136 & 138	1AE380TRAB, TSAB and TTAB	"C" Level Tunnel Control Bldg.
TS-301-37, 39, 40, 41 and 300	1AE301TYAF	"B" Level Control Bldg.
TS-301-42, 43, 46, 47, 48 and 49	1AE301TYAG	
TS-301-57, 58 and 59	1AE301TYAJ	
TS-113-282	1AE302TYBP	Unit #1 Cable Spreading Room
TS-113-281	1AE302TYBR	
TS-113-276	1AE302TYBS	
TS-113-270, 269, 266	1AE302TYBU	
CS-422-113-012, 014, 043, 044, 045 and 060	1NE422RS205	"C" Level Auxiliary Bldg.
CS-412-74-007, 008, 009, 010, 011, CS-412-73-007 and 008	1NE412RL004	
CS-411-56-056, 058 and 059	1NE412RL008	"D" Level Auxiliary Bldg.

Documents Examined

The following documents were reviewed and used in the examination discussed above.

Specification No. X3AR01-E8, Raceway Systems
Specification No. X2AP01-C9.1, Field Fabricated Miscellaneous 'Q' Class Steel
Specification No. X2AP01-C9.7, Furnishing, Installation and Testing of Concrete Anchors
Procedure QC-T-05, Visual Inspection
Procedure GD-T-02, Installation and Inspection of Concrete Expansion Anchors
Procedure ED-T-02, Raceway Installation

During the inspection, it was noted that the tray support drawings were difficult to follow in that they contained multiple referenced details and options; however, the GPC QC inspector was very knowledgeable in this area and provided adequate explanations of the drawing requirements. The multiple referenced details, notes, and options on these drawings, is a concern of the GPC Vogtle QA Department and is identified in their audit ED01-83/26.

Some adhesive segments of the cable tray identification markers were missing and trash was observed in cable tray tube steel support members. Since only segments of the cable tray identification markers were missing and similar or the same markers are used at intervals of 15 feet or less, the cable tray identification was comprehensible. The licensee representative indicated that GPC was well aware of both of these items and that both had be n and are being brought to the craft's attention to minimize these problems. The tray identification segments are being replaced when they are found to be missing and clean up personnel remove the debris from the tube steel supports.

QA Audits (51055B)

The following audits were reviewed to ensure that audits were being performed. Audit deficiency items were identified, documented for tracking, and were corrected or are being resolved.

Audit No.	Title
ED01-83/26	QA Audit of Drawings used for Installation and Inspection of Conduit and Cable Tray Supports
ED05-83/31	QA Audit of Electrical Equipment Control Program
ED03-83/06	QA Audit of Cable Pulling Inspection Program
ED04-82/118	QA Audit of Cable Termination

Audit ED04-82/118 identified a potential deficiency with regard to cable termination in vendor supplied cabinets. Region II was notified and assigned a Construction Deficiency Report (CDR) Number 50-424, 425/82-37 to this item for tracking purposes and followup. The licensee's final report on this item is scheduled to be issued the latter part of July 1983.

Additionally, an Audit Finding report was issued on complexity of design drawings for cable tray supports. Audit ED01-83/26 stated that the drawings contained multiple referenced details, notes and options that made the installation and inspection of many of the tray supports complex and difficult to follow. This was experienced during inspection of cable tray supports, see the preceeding paragraph of this report. This is Inspector Followup Item (IFI) 50-424/83-13-08, and 425/83-13-05, "GPC Audit ED01-83/26, Item Concerning Design Drawings for Cable Tray Supports".

Within the areas examined, no violations or deviation were identified.

Receipt Inspection, Storage and Maintenance of Electrical Equipment (51053B)

The storage of electrical equipment in various areas was inspected for adequacy of protection against damage, storage conditions, cleanliness and, where applicable, extremes of temperature and humidity. This inspection covered areas in the auxiliary building, control building, and various warehouse facilities which included the level A storage area. The latter area is environmentally controlled for temperature and humidity.

The licensee has initiated action to limit access in plant areas where electrical equipment is stored in place that have on-going construction activities. The electrical equipment in these limited access areas are properly protected with fire retardant covering, humidity controls are in effect where applicable, cleanliness is adequate and it appears that inspections of this equipment is current and ongoing. The following items which were examined in the field also had a records check to ensure that storage requirements and periodic inspections were being performed.

Identification Number	Description
1-1902-C6-002M01	Waste Gas Compressor Motor
1-1806-B3-CAB	Battery Charger
1-1806-S3-DCC	125V DC Motor Control Center
1-1203-P4-002M01	Component Cooling Pump Motor
1-1204-P6-001M01	Boron Injection Recirculation Pump Motor
1-1604-Q5-PS2	7300 Series Protection Panel (Stored in Level A Storage)

The following documents were reviewed and used in the examination discussed above.

Specification No. X3AR01-E11, Storage and Protection of Equipment and Materials
Procedure GD-T-09, Inspection and Maintenance of Items in Storage
Procedure GD-T-17, Housekeeping
Procedure ED-T-09, Insulation Tests

The receiving inspection of electrical items is performed by GPC QC personnel. Procedure GD-A-30; Receipt, Receiving Inspection, Storage and Handling, is the basic document used in this inspection. Records of the receiving inspection are documented on a Equipment/Material Receiving Inspection Report. The equipment/material is on hold in the receiving area warehouses until a document review to purchase order requirements has been performed. After the document review is complete, a Document Acceptance Report (DAR) is issued indicating that equipment can be released (assuming no other Holds are in effect) for construction purposes. If a DAR can not be issued, a Conditional

Release can be used to release the equipment for construction purposes. The Conditional Release is removed after the DAR is issued. Inverters 2-1807-Y3IB2 and 2-1805-Y3ID6 were used as examples to examine the above process. Both items were located in the warehouse and DAR E511 was issued for the latter item.

Nonconformance Report Review and Trending Program (51055B)

Nonconformance Reports (NCR) were reviewed to insure that proposed corrective actions were appropriate, timely and that proper personnel concurred in the resolution. Nonconformance reports ED-1047, 1062, 1069, 1094, 1095, 1108 and 1109 were used as examples in this review.

The licensee indicated that a computer program was going to be issued to make it easier to trend NCR's and other deficiencies. This program should be in place by early Fall.

Calibration and Control of Equipment/Tools

To a large extent, the only tools presently being used in electrical areas of work are torque wrenches. The facilities, where these calibrations are performed were examined and a discussion was held with personnel in this area. The program is in accordance with the licensee's procedure GD-A-04, Calibration and Control.

Conclusion

(1) There appears to be a good work rapport between engineering, craft, and QC personnel

(2) Site technical support are providing the needed guidance to craft and QC personnel

(3) Personnel interviewed were knowledgeable to perform their responsibilities

(4) Personnel interviewed expressed that they felt that the Vogtle Project is a quality product. The NRC inspector concurs with this assessment

(5) Program requirements as delineated in procedures and specification are being followed.

Within the areas examined, no violations or deviations were identified.

h. Civil Construction Activities

General

The objective of this portion of the inspection was to determine the adequacy of the implementation of the licensee's quality control/quality assurance program for civil construction activities. During

previous NRC inspections in the civil area, implementation of the QA/QC program for control of structural concrete and earthwork construction has been reviewed in depth. Thus, for the purpose of this inspection, the specific areas chosen to be reviewed in depth were structural steel erection, concrete expansion anchor installation, and embedded plate installation. The inspection included examination of procedures, review of QA Audits, observation of work activities, and review of quality records.

Construction and Quality Control Instructions and Procedures

The inspector examined design drawings, specifications, and construction QC procedures to determine if work activities and quality control and quality assurance functions were provided for as stipulated in the PSAR and NRC requirements. The following procedures and specifications were examined:

(1) Bechtel Design Drawings

(a) Drawing numbers IX2D48F101 through IX2D48F116, Containment Internals - Structural Steel

(b) Drawing number AX2D94V012, Miscellaneous Connections

(c) Drawing number AX2D94V019, General Notes

(d) Drawing numbers AX2D94V006 and AX2D94V017, Typical Insert Plate Schedules and Details

(e) Drawing number AX2D66N010, Cat. I Cable Tray Support - Basic Tray Support Type

(2) Bechtel Specifications

(a) Specifiction No. X2AP01, Section C5.1, Erection of Structural Steel

(b) Specification No. X2AP01, Section C9.1, Field Fabricated Miscellaneous "Q" Class Steel

(c) Specification No. X2AP01, Section C9.7, Furnishing, Installation, and Testing of Concrete Anchors

(3) Georgia Power Construction Procedures

(a) Procedure GD-T-02, Installation and Inspection of Concrete Expansion Anchors, Rock Bolt Expansion Anchors, and Maxi Bolt Anchors

(b) Procedure CD-T-07, Embed Installation and Inspection

(c) Procedure CD-T-16, Structural Steel and Q-Decking

(d) Procedure QC-T-05, Visual Inspection

(4) Pullman Vogtle Project Procedure - Installation and Inspection of Concrete Anchors

(5) PKF Vogtle Procedure - Installation and Inspection of Expansion Anchor

Review of the specifications and procedures for expansion anchor installation and inspection disclosed inadequacies regarding appropriate instructions and acceptance criteria as follows: The specification and procedures did not contain instructions or acceptance criteria for verifying that concrete expansion anchors installed at locations shown on design drawings comply with design criteria for minimum edge distance to concrete edges, minimum distances to previously installed expansion anchors, and/or minimum distance to support elements embedded in concrete. The specifications and procedures also did not contain acceptance criteria for verifying that the baseplate (i.e., baseplates installed with concrete expansion anchors) to concrete surface gaps are considered in determination of concrete expansion anchor embedment depth. The above examples of procedures not containing appropriate quantitative or qualitative acceptance criteria for determining that concrete expansion anchors have been satisfactorily installed was identified to the licensee as violation item 424/83-13-02 and 425/83-13-01.

Observation of Work and Work Activities

The inspector observed installation, torquing, and QC inspection of high strength bolts for the Unit 1 reactor building structural steel floor framing. The bolting operations observed were for connection of joint numbers 191, 193, 194, 207, 208, and 210 on elevation 261. Prior to observing the bolting operations, the inspector witnessed verification testing of the inspection torque wrenches on the Skidmore-Wilhelm device. During the bolting operation, the inspector observed that the correct type of bolts and nuts were used, that washers were used when required, that the bolts were tightened by turn-of-the-nut method as specified, and that the torque was verified using the inspector torque wrench.

The inspector walked down the Unit 1 reactor building and examined structural steel floors/platforms on elevations 180, 188, 195, 197, 206, 209 and 219. The inspector examined structural connections to determine if the structural steel had been erected and inspected in accordance with drawing and specification requirements. During the walkdown, the inspector noticed some discrepancies. The inspector reviewed QC inspection records to determine if the discrepancies had been detected and documented by QC inspectors. The results of the QC record review are in the report section discussing review of quality records below.

The inspector examined embed plates in the Unit 2 reactor building. The embed plates are placed in concrete structures and used for attachings such items as pipe supports, cable trays, HVAC ducts, and platforms. The licensee has identified numerous deficiencies in fabrication of embeddment plates with threaded type studs. These deficiencies have been documented on nonconformance reports. In addition, since 1979, three construction deficiency (50.55(e)) reports (CDRs) were made to NRC concerning these problems. The latest 50.55(e) report was made to NRC Region II in May 1982, as potentially reportable item. The licensee is finalizing their report on this item. In order to perform an in-depth review and evaluate the cause and correction of the numerous embed problems, the licensee formed a quality assessment team (QAT) composed of a cross-section of personnel from the quality assurance, construction, design and quality control departments. The inspector discussed the finding of the QAT with various team members and reviewed a draft of the report prepared by the QAT to resolve and correct the problems. The inspector held discussions with numerous civil QC inspectors responsible for inspecting the embed plates prior to concrete placement operations and discussed the previously identified embed problems with them. The inspector accompanied several of the QC inspectors and observed them in performance of embed plate inspections. The inspector questioned the QC inspectors regarding the adequacy of the corrective actions taken by the licensee to prevent future problems with the embed plates. The majority of the QC inspectors questioned stated that they felt that the problems had been corrected by retraining the craft personnel in the summer of 1982. A few inspectors stated that they occassionally found embed plates during their inspections that contained defects. However, they felt that the problems had, for the most part, been resolved. NRC will make an evaluation of the licensee corrective actions to resolve the embed plate problems in subsequent inspections in followup on previously identified IFI 424, 425/82-09-01 concerning these problems and in review of the licensee's final report for the CDR reported in May, 1982.

The inspector toured the onsite structural steel fabrication facility. and observed fabrication of embed plates and miscellaneous structural steel members. The inspector examined the steel laydown area and discussed steel fabrication and inspection controls with licensee QC and engineering personnel.

As a result of a QA audit findings, the licensee is in the process of performing a reinspection of concrete expansion anchors supporting safety related equipments. The inspector discussed their program with electrical and civil QC inspection and engineering personnel. The inspector, accompanied by electrical QC inspectors, walked down the auxiliary and control buildings and examined concrete expansion anchors which had been installed to support cable trays, conduit and various other items of electrical equipment. NRC will review the results of the licensee's resolution of this audit finding during followup on previously identified IFI 424, 425/83-11-05.

The inspector discussed criteria and safety factors used to establish concrete expansion anchor design values with Bechtel engineers. These discussions disclosed that the design values are based on manufacture's test data and in some cases, the safety factors may not comply with IEB 79-02 requirements. The expansion anchor design values will be reviewed by NRC in a subsequent inspection to determine if the design values comply with NRC requirements. This was identified to the licensee an Unresolved Item 424/83-13-05 and 425/83-13-03, Verification of Expansion Anchor Design Values.

Review of Quality Records

The inspector reviewed quality records pertaining to erection of the Unit 1 reactor building internal structural steel floors and platforms. Acceptance criteria examined by the inspector are those applicable procedures listed above. Records examined were bolting and weld status reports documenting QC inspection results for selected structural steel welds and bolted connection on various level of the reactor building between elevations 180 and 219. The inspector reviewed records for structural connections where discrepancies were noted during the walkdown inspection of the Unit 1 reactor building structural steel discussed above. The inspector noted that most areas where discrepancies (e.g., missing bolts) existed were considered incomplete by QC personnel and had not yet been inspected. However, during the records review, the inspector noted the following problems:

(1) During the walkdown, the inspector observed that 7/8 inch diameter bolts for connection numbers 123 and 206 on the elevation 180 floor framing, structural steel were not double nutted as required by connection details shown on the design drawings. The QC inspection records indicated that they had been double-nutted and were snug tight.

(2) During the walkdown inspection, the inspector noted that some beams and cross-braces had not been installed between column numbers 29 and 1 on elevation 197.5 and 210. Review of QC inspection records indicated that these members had been installed, inspected, and accepted by QC. Records indicating that inspection was completed were as follows:

- Elevation 197.5, connection numbers 117, 119, 120, 121, 122 and 124

- Elevation 210, connection numbers 56, 58, 59, 60, 223 and 224

(3) Review of the QC records and review of procedure CD-T-16 disclosed that the inspection instructions in the procedure did not require checking that the beam size (type) and location was installed as required. However, some of the inspection documentation forms reviewed by the inspector required this information. Discussions with QC inspector

personnel disclosed that the inspection forms had been recently revised to require this data. Review of the revised inspection forms which required this data disclosed numerous entries where this data had been omitted. Failure to require and perform verification that the proper beam size (type) is installed at its proper location in the structure is another example of an inadequate inspection procedure. The inconsistency between the documentation forms and inspection instructions in the procedure was noted during inspection number 424, 425/83-11 (May 24-27, 1983). During this inspection, this was identified to the licensee on IFI 424, 425/83-11-04. This IFI is closed.

Discussions with licensee engineers and inspectors disclosed that these members had been installed and were recently removed to allow access to install piping and other equipment. Further review of of GPC procedure number CD-T-16 disclosed that the procedure was inadequate since it does not have controls to prevent modifications to or removal of structural steel members after the steel had been inspected and accepted by QC inspection.

The above examples of inadequate inspection procedures and failure to follow procedures were identified to the licensee as additional examples of violation item 424/83-13-02 and 425/83-13-01, Inadequate Procedures or Failure to Implement Procedures Relative to Structural Steel and Concrete Expansion Anchor Installation and Inspections.

Review of Civil QA Audits

The inspector made a detailed review of results of audits conducted by site QA personnel. Audits examined covered areas of structural steel erection and concrete expansion anchor installation and were as follows:

(1) Structural steel erection - Audit numbers CD 04-81/92, CD 04-82/16, CD 04-82/26, CD 04-82/90, CD 04-82/135 and CD 04-83/16.

(2) Concrete expansion anchor installation - Audit numbers MD 14-81/65 and MD 14-82/36.

In addition to the audit reports, the inspector reviewed responses to audit findings from the organization (construction) being audited, and the results of followup audits conducted by QA personnel to verify that the corrective actions to resolve audit findings were effective and implemented in a timely fashion.

Based on a review of the above documents and interviews with QA personnel, the inspector concluded the following:

- The QA organization is independent from design and construction.

- The QA organization has sufficient authority to identify quality problems, initiate, recommend or provide solutions, and to verify implementation of solutions.

- QA has authority to stop work. This authority was clearly demonstrated by issuance of Stop Work notice SW-C-41 when the contractor failed to follow the initial corrective action to resolve audit findings of audit number CD 04-82/26.

- Construction personnel cooperate with QA in resolving audit findings properly.

- QA personnel were knowledgeable of QA program requirements and appeared to be very conscientious.

- The QA program is being effectively implemented in the civil area.

Personnel Interviews

The inspector conducted informal interviews with contractor employees (construction craftsmen and supervisory personnel) and Georgia Power QC inspectors and civil engineers. These discussions disclosed that all personnel felt that there was good cooperation between craft, QC and engineering personnel. Craft and QC personnel stated that technical assistance from engineering personnel for resolution of problems and interpretation of requirements was available whenever they requested it. QC inspector personnel were knowledgeable of QA/QC requirements.

Conclusion

(1) The QA organization and personnel are effectively implementing the QA program requirements in the civil area.

(2) Civil QC personnel are knowledgeable of civil inspection requirements and perform their inspections in accordance with the licensee's QC procedure.

(3) In addition to the problems identified in the violations discussed above, similar procedural deficiencies involving inadequate QC inspection procedures have been identified in previous QA audits and NRC inspections in the areas of earthwork, structural concrete and concrete expansion anchor installation. The type procedural deficiencies identified were that the QC inspection procedures did not contain sufficient instructions and acceptance criteria for performing inspections to assure that construction activities had been accomplished in accordance with drawing and specification requirements. The inspector is concerned that procedural deficiencies may exist in other areas which could potentially result in inadequate QC inspection of completed work.

i. Welding and Nondestructive Examination

General

The scope of this inspection included Non-Destruction Examination (NDE), control of weld material, and welding with the primary emphasis on radiography. On this site, the radiography is performed by Pullman Power Products (PPP) as a first level quality control operation. The radiographs for the ASME code piping welds are reviewed by the Authorized Nuclear Inspectors (ANI) with Hartford Steam Boiler Insurance Company. The third review of the radiographs is performed by Georgia Power Company Level III NDE specialist. In addition, the NDE program is a designated element in the licensee Quality Assurance Audit schedule. This element is included in the NRC program for periodic evaluation.

Inspector Activities for Non-Destructive Examinations (NDE)

An inspection was made of the Piping Contractor Program for NDE. Reviews were made of the following activities:

(1) Organizational structure including qualifications, training, and responsibilities; duties of the Radiation Protection Officers; and observation of work activities of selected NDE technical personnel.

(2) Records:

Daily radiographic log
Utilization logs
Dosimeter records
Film badge records
Survey meter calibrations
Radiographic inspection reports

(3) Radiographic Procedures:

1X-RT-1-77 - Butt Welded Pipe RT-1R-192
1X-RT-3-77 - Nozzle Welds RT-1R-192
X-11 - Visual Examination - General
Radiography License & Safety Program

(4) Qualifications of Personnel:

Training of radiographers and radiographers' assistants was reviewed. Initial, periodic, and on-the-job training in the safety and proficient use of licensed sealed sources used in the radiography of piping. The personnel qualifications and certifications for the knowledge of technical principals were examined

to the requirements of the Society for Non-Destructive Testing SNT-TC-1A in the area of education, training, and experience. Observations were made of selected activities.

(5) Training:

An inspection was made of the training facility, training program and records for three Radiographers and one Assistant Radiographer and one Level II Liquid Penetrant Examiner. All three of the radiographers were qualified to the requirements of SNT-TC-1A. Two of the radiographers were not qualified for interpretation as of this inspection. The inspector was informed that these persons do not make film interpretations.

(6) Radiography Observations:

Inspections were made to observe the actual radiography in progress. This inspection activity was planned to observe a complete cycle from the loading of film to the final development and evaluation. Observations were made of a Unit 1, Primary Containment Penetration Weld (Fluted Head to Sleeve Weld). The penetration was identified as a Seal Water Supply No. 53, located on the 209' 10" level at the 158° 06' 27" Azimuth. The following activities were observed:

Preplanning of the Activity, Calibration & logging of dosimeters, Loading of film and placement of lead screens, Procedures to inform and clear personnel from area, Obtain and survey sealed source from storage, Transportation of sealed source, Survey and establish safety boundaries, Inspect methods and equipment used to identify boundary, Layout of nozzle for film station markers, Selection and placement of penetrameters, Location and installation of source tube (center of nozzle), Note:

This technique provided a panoramic exposure; however, the radiography was performed in 2 exposures with film cassettes placed on opposite sides of the pipe. Although this technique requires two exposures to complete the nozzle, it does preclude possible interpretation problems relative to film overlap and related film density variables, Survey Meter Availability, Status of Calibrations and Observations of Their Use When Necessary in Required Areas, and Development of the Radiographs, Inspection of the Film for Definition and Radiographic Quality.

The following documentation was applicable to this inspection:

Radiographic Procedure IX-RT-1-77-Butt Welded Pipe,
Process Traveler for Weld 53W with required sign-offs,
Personnel Exposure Log,
Daily Radiographic Log,
Utilization Log, and
Radiographic Inspection Log

An item of concern was noted during the inspection relating to the source being transported from the storage facility on the premises to the power block in the back of a pick-up truck which did not have the required "Radioactive" signs as described by the Contractor Radiographic Operating Procedures which state:

3.2 OPERATING PROCEDURES TO RADIOGRAPHER FOR REMOTE CONTROL DEVICES

3.2.1 GENERAL INSTRUCTIONS (cont'd.)

3.2.1.3 On premises transportation can be accomplished by use of handcarts, a vehicle or mobile crane. Portable exposure devices must not be handcarried long distances since relatively high radiation levels often exist at the surface of these devices. Any transporting vehicle must be placarded on the front, rear, and each side with "RADIOACTIVE" sign consisting of black letters on yellow background. Letters shall be at least 4" high with an approximate 5/8" stroke. The outer surfaces of the vehicle and passenger compartment must be surveyed to assure that radiation levels do not exceed 2 Mr/Hr. Appropriate shielding, secured to make it immobile, must be added if necessary, to reduce radiation to this level.

When this matter was brought to the attention of responsible personnel, the matter was immediately corrected. This matter is being referred to the state issuing the original license by Region II personnel.

No Violations or deviations were identified.

Inspector Activities for Safety-Related Piping Welds

Inspections were performed on three ASME Code welds and one ANSI B31.1 weld in the Primary Containment building which were in various stages of completion, such as in-process welding, a fit-up prior to fusing the insert, and a completed weld which had been prepared for ASME Section XI examinations. The welds are identified below with the related inspections described.

(1) 1-1202-299-5-03 - Nuclear Service Cooling Water, weld completed except the last two passes, examined for weld metal cohesion, undercut, surface condition, interpass temperature, identification and qualification of weldor and required process sheet, drawing, field installation instruction, material identification and weld material record.

(2) 1-1202-231-5-03 - Nuclear Service Cooling Water. Examined final ground weld surface suitability for the pre-service and in-service non-destructive examinations relative to ASME Section XI. The Inspector noted that the top surface of the welds were ground to a flat condition for transducer contact and the weld edge fusion lines were blended to uniform transition radii to preclude irrelevant signals.

(3) 1-1206-008-5-23 - Containment Spray System. This weld was fit-up with the insert in place, awaiting the inspection of the pipe contractor QC welding inspector. The Inspector noted minimum spacing, the placement of tacks and observed the inspection performed by the contractor inspector for circularity and offsets. The Inspector noted that the procedure required purging with inert gas and removal of the purge dam. Examination of the weldor qualification control record verified the performance qualifications of the assigned weldor.

(4) 1-1901-019-03-ANSI B-31.1, Liquid Waste Process System. This weld was inspected with the fit-up of the insert in progress. The preparation and work in progress was observed, the drawings and instructions examined, Procedure 38/III/I and identity of weldor identified and reviewed.

No violations or deviations were identified.

Inspector Activities for Weld Filler Metal and Consumables

The inspection of this item was initiated at the purchasing phase where the technical and quality requirements are applied to the purchase requisition as approved by the Bechtel technical specification for welding filler materials X4AQ37 Rev. 5. This specification provides the requirements relative to the codes and standards, material, testing and examination, identification, inspection, and quality assurance. Further requirements for the receiving inspections, storage, distribution, and controlling weld

material are specified in the following procedures contained in the Georgia Power Field Procedure Manual:

GD-T-13-3
GD-T-14-3
GD-T-15-2
MD-T-12-5

Inspections were made in the warehouse receiving and storage area to inspect the receiving inspection and verification system. This included the authorization for release to each of the contractor satellite issue stations. The following issue stations were inspected:

Pullman Power	- Power Block Control Building
Pullman Power	- Turbine Building
Georgia Power	- General Issue Outside Power Block
Ingalls	- Fabrication Shop

These issue stations were examined for:

Requisition procedures,
Bulk storage conditions,
Separation of material into size, heat no. and lot,
Holding ovens, heat checks, calibration status, and
Issue of material to weld or which included amount, type, size, and activity, and the return and disposition of unused material.

During the inspection, a review was made of the procedure and control of nonconforming weld material. A specific lot of material, ER 309L HT05766 Teledyne McKay was in this status. The Inspector noted that the material was separated, identifying banding was placed around it and a hold tag MW271 attached. The inspector was informed that the QC Department were the only ones authorized to remove the Hold tags.

No violations or deviations were identified.

Conclusion

The examination of documents and the related observations indicated that the radiography program for pipe complied with the contractual requirements and produces radiographs with required definitions to distinguish detrimental conditions if present in the welds.

The weld material control program appeared to have built in control points to provide assurance that the weld material was purchased, inspected, certified, controlled and issued to the work station as required by the contractual requirements.

The inspection of the welding activities consisted of a review of procedures, observation of fit-up activities, observation of welding and final preparation of the welds for NDE and inservice inspections. Throughout these inspections it became apparent that the surveillance performed by the licensee of the constructor activities, provides appropriate check points and contributes to the overall control of the activity.

No violations or deviations were identified.

j. Regional Construction Assessment Team Conclusion

The following is a concensus conclusion of the inspectors relative to overall management of the project. The following considers the identified violations and other identified items. No identified item or items are considered to be a major breakdown in the GPC management control systems.

(1) GPC is extensively involved in the Vogtle project throughout design, procurement, and construction.

(2) GPC project, construction, and QA management display and give evidence of an organization with experience, understanding and ability to manage a complex nuclear project.

(3) The licensee manages the project and does not place a high degree of reliance on contractors for project and construction management.

(4) GPC is a problem oriented organization and faces the day-to-day problems head-on. They admit to their problems and vigorously pursue correct action.

(5) Authority and responsibilities are clearly specified and well understood by participating organizations.

(6) The site is well staffed with engineering support, QA representation, QC staffing across the disciplines, craft, and support personnel.

(7) Site equipment and facilities are excellent to support construction activities.

(8) There is cooperative and supportive rapport between engineering and craft, engineering and QC, and between craft and QC.

(9) It appears quite evident that GPC is not just giving lip service to the management control and QA systems, they are putting their resources up front and implementing a viable quality program with full management support and involvement.