



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

Report No.: 50-425/88-22

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

Docket No.: 50-425

License No.: CPPR-109

Facility Name: Vogtle 2

Inspection Conducted: April 18-21, 1988

Inspector:

M. D. Hunt
M. D. Hunt

5/11/88
Date Signed

M. N. Miller
M. N. Miller

5/11/88
Date Signed

Approved by:

T. E. Conlon
T. E. Conlon, Section Chief
Plant Systems Section
Division of Reactor Safety

5/16/88
Date Signed

SUMMARY

Scope: This routine, unannounced inspection was in the areas of electrical equipment installations and records; electrical cable installations and records; instrumentation component installations and records; and heat shrinkable tubing installation program.

Results: No violations or deviations were identified.

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *J. E. Adams, I&C Lead Engineer
- *C. L. Coursey, Maintenance Superintendent
- *M. D. Duncan, I&C Supervisor
- *L. B. Glenn, Manager, Quality Control
- *E. D. Groover, QA Site Manager, Construction
- *H. M. Handfinger, Project Start-up Manager
- *R. E. Hollands, Engineering Construction Supervisor
- *G. A. McCarley, Project Compliance Coordinator
- *R. H. Pinson, Vice President
- P. D. Rice, Vice President and Project Director

Other licensee employees contacted included construction craftsmen, engineers, and technicians.

NRC Resident Inspectors

- *R. J. Schepens
- *Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on April 21, 1988, with those persons indicated in Paragraph 1 above. The inspector described the areas inspected and discussed in detail the inspection findings. No dissenting comments were received from the licensee. The licensee did not identify as proprietary any of the materials provided to or reviewed by the inspectors during this inspection.

3. Licensee Action on Previous Enforcement Matters

Closed URI 50-425/88-16-01, Review Status of Damaged Indicators

The licensee issued Operation Deficiency Reports (ODR) Nos. T-2-88-521, 522, and 523, dated March 30, 1988 for damaged flow, level, pressure, position, and temperature indicators located on shutdown Panel-Train A the same date. The instruments identified as damaged were:

2FI-1640C	2LI-102B	2PT-514C
2PI-405A	2LI-504B	2ZI-5137B
2TI-443C	2LI-548A	2LI-501B
2TI-413C	2FI-5150B	2PI-544C

Maintenance Work Orders (MWO) No. 28802828 dated March 30, No. 28802860 dated March 31, 1988, Nos. 28802886 and 28802887 dated April 4, 1988 were issued to provide for the corrective action of replacing the defective indicators. The inspector examined Shutdown Panel-Train A to verify the damaged indicators were replaced. Discussions were held with the licensee to determine when the damage occurred and if it was overlooked by inspection personnel. These items were found to be indeterminate. However, additional component inspections will be performed during the area turnover walkdowns which should identify physical damage as found on the indicators. The shutdown room has not been turned over. Procedure GD-A-50, Nuclear Construction Area Turnover, Revision 4 dated February 25, 1988, requires all components be inspected for physical damage during the area turnover walkdowns.

4. Unresolved Items

Unresolved items were not identified during this inspection.

5. Electrical Components and System, Work Observations (51053); Electrical Components and Systems, Record Review (51053); Electrical Cable, Record Review (51065)

The inspector examined three electrical penetration assemblies (EPA) in which cables were being terminated at the inside containment connections using or having used heat shrinkable tubing materials. These EPAs have had a gridwork of steel added to each termination box to support the weight of the incoming cables. This steel along with the added weight of the cables will be evaluated by the licensee to insure that the resultant moment is within the manufacturer's tolerances. All the EPAs had the covers installed to provide protection from the surrounding construction activities.

The EPAs reviewed to the detail described above were:

2APS22 Control Voltage Penetration
 2APS21 Medium Voltage (Power) Penetration
 22PY46 Instrumentation Penetration

The inspector reviewed the following ten Field Change Requests (FCR) for adequate engineering evaluation, review and control:

E-FCRB-8616F - Special Raceway waiver
 E-FCRB-8615F - Hotpipe to tray separation relief
 E-FCRB-21519 - Special separation of NIS Conduit and junction boxes
 E-FCRB-8340F - Hotpipe to tray separation relief
 E-FCRB-8407F - Conduit to pipe separation relief
 E-FCRB-7505F - Conduit to pipe separation relief
 E-FCRB-21868 - Request to splice cable
 E-FCRB-21933 - Request to splice cable
 E-FCRB-8633F - Change unsupported length of special cables
 E-FCRB-21924 - Splice vendor leads to HVAC motors using Raychem kits

These FCRs were onetime deviations from the electrical construction and design Specification No. X3AR01, Section 16 to permit a special case field installation and are designated as "NA/NA" FCRs in that no drawing change notice (DCN) or construction specification change notice (CSCN) were required/issued. The FCRs were evaluated by the appropriate engineering unit, reviewed by QA when required and reinspected by QC as required.

A review was made of the installation documentation which verified the torquing of the EPA mounting rings and the attachment of the EPA internals. The installation inspection was conducted and documented in accordance with Construction Procedure ED-T-04 Installation of Major Electrical Equipment. The receipt inspection records were also reviewed and found in order. The storage inspection records which document the maintenance of the internal gas blanket pressure had been transferred to the operations section along with the surveillance responsibilities and were not reviewed during this inspection.

The following QA audits were reviewed by the inspector:

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|------------|---|
| CP0-87/62 | Audit of the Electrical Contractor and Electrical Field Operations. Audit of planned and systematic controls applied to the construction, fabrication and installation of electrical systems. |
| CP09-86/60 | Audit of Electrical Contractor and Electrical Field Office Activities. Review of drawing control activities, equipment installation and documentation. |
| CP09 87/12 | Audit of Electrical Contractor and Electrical Field Office. Review of Main Control Board Installation Activities. |
| CP17-87/57 | Audit of Electrical Contractor and Electrical Field Officer - Review of Cable tray support installation activities. |
| CP18-87/47 | Audit of Electrical Contractor and Electrical Field Office Review of Cable pulling and routing activities. |

The above QA audits were performed in accordance with the planned audit schedule which was aligned to the construction activities in progress. The findings were sufficient in detail to provide meaningful direction to the personnel responsible for detailing the corrective actions. The corrective actions taken were verified by the auditor before each finding was closed.

It should be noted that a finding in Audit No. CP01-87-62 listed above identified a problem with separation between Non-IE and IE service level cable trays not meeting the specified criteria in one area of the plant. The licensee has submitted a potentially reportable concern M142 to the NRC. Further evaluation is in progress.

The inspector selected a random sample of closed Deficiency Reports (DR) for evaluation of the item to meet the reporting requirements of 10 CFR 50.55(e) and Part 21. The DRs were maintained in well coordinated files with an index available which provided a brief description of the item and the current status of the evaluation process for each item. All DRs reviewed appeared to have had adequate engineering review and often contained copies of the evaluation for the corrective action recommended. These DRs addressed deficiencies in conduit supports EPAs, cable installation problems, circuit breaker wiring, electrical junction boxes and panel internal wiring. Listed below are the identification numbers of the DRs reviewed:

ED16001	ED16004	ED16005	ED16008
ED16014	ED16015	ED16022	ED16036
ED16060	ED16100	ED16149	ED16234
ED16277	ED16347	ED16510	ED16529
ED16516	ED16635	ED16664	ED16677

The inspector examined the certification and training records for five QC inspectors. All certifications were current. The educational records were adequate to support the levels at which the inspectors were certified and were supported by training records and test scores.

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

6. Instrument Components and Systems - Work Observation (52053)

The inspector performed walkdowns in the auxiliary building, the control building, and the containment building to observe completed work for damage and whether temporary protection is provided where needed to prevent damage. The completed work examined was various instrument installations, tubing runs, racks and panels. During construction, temporary protection is generally required to prevent inadvertent damage from other adjacent construction activities, especially welding and being stepped on. Instrument tubing is an item that is susceptible to damage and was given special attention.

In the containment building, instrument tubing for the four steam generators and the pressurizer was examined. This tubing was inspected since insulation lagging was in the beginning stage of being installed. The flexible hoses (required for thermal growth) from the condensing pots on the vessels to the tubing were given special attention to assure the protective wire braiding was not damaged. In the auxiliary building, instrumentation and tubing were inspected in the following area:

Room 119	Safety Injection Pump A
Room 118	Safety Injection Pump B
Room 4	RHR Pump A

In the control building, Shutdown Panel - Train A and Shutdown Panel - Train B were inspected. Both panels were adequately protected. Shutdown Panel - Train A was examined to determine if the previously found damaged indicators had been replaced. The indicators were replaced (See Unresolved Item 88-16-01-closed).

The inspector did not identify any damaged instruments, tubing, racks or panels or any items which were not adequately protected.

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

7. Instrument Components and Systems - Record Review (52055)

The inspector examined personnel qualification records, nonconformance and deviation reports, and change control records for instrumentation. These records were reviewed to determine whether adequate preparation, evaluation, review, and control had been made and the records reflect the requirements of Georgia Power Company (GPC) and the mechanical instrumentation contractor, Pullman Power Products (PPP).

The personnel qualification records for eight technicians and three foremen in the Instrumentation Section of the Startup Group (Test) were reviewed. The records for both contract and GPC personnel met the requirement in Procedure SUM-24, Initial Test Program Personnel Certification. The records are sufficient to support qualifications in terms of certification, experience, proficiency, and training in the areas of instrumentation calibration and testing.

Deviation Reports (DR) written by PPP during the construction phase and Operation Deficiency Reports (ODR) written by GPC during the test phase were reviewed for the following attributes:

Records are legible, complete and promptly reviewed by qualified personnel.

Records are properly identified and stored, indicate current status and are readily available.

Records include the status of corrective action or resolution, and adequate justification is provided for the "USE As-Is" disposition.

The DRs and ODRs reviewed are listed as follows:

	<u>Record</u>	<u>Date</u>
PPP	DR PP-17607	08/18/87
PPP	DR PP-17683	10/01/87
PPP	DR PP-17691	10/06/87
PPP	DR PP-17696	10/06/87
PPP	DR PP-18031	04/12/88

<u>Record</u> (cont'd)	<u>Date</u>
GPC ODR T-2-87-201	10/05/87
GPC ODR T-2-87-268	11/03/87
GPC ODR T-2-87-271	11/03/87
GPC ODR T-2-87-404	12/05/87
GPC ODR T-2-87-421	12/09/87
GPC ODR T-2-87-435	12/11/87
GPC ODR T-2-88-166	01/19/88
CPC ODR T-2-88-407	03/14/88
GPC ODR T-2-88-414	03/16/88
GPC ODR T-2-88-438	03/19/88
GPC ODR T-2-88-456	03/24/88
GPC ODR T-2-88-470	03/26/88
CPC ODR T-2-88-484	03/28/88

The inspector examined Field Change Requests (FCR) written by the mechanical instrumentation contractor, PPP, and evaluated by GPC engineering. The FCRs were reviewed to ensure that the design changes or "Use-As-Is" dispositions are evaluated, reviewed and approved by qualified engineering personnel. The FCR reviewed are listed as follows:

<u>GPC FCR No.</u>	<u>Date</u>
Y-FCRB-5138	01/08/87
Y-FCRB-5400	03/18/87
Y-FCRB-5493	04/07/87
Y-FCRB-5715	06/24/87
Y-FCRB-6093	09/09/87
M-FCRB-17876	12/15/87
Y-FCRB-6615	01/06/88
Y-FCRB-6834	02/29/88
Y-FCRB-6864	03/03/88
Y-FCRB-6884	03/09/88

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

8. Inspection of Heat Shrinkable Tubing (HST) Installation and Design Program (TI 2500/17)

The inspector reviewed the licensee's program for the designing, assembling and installation of heat shrinkable tubing used on electrical splices and terminations. The licensee uses only traceable materials or certified manufactures kits for splices and terminations.

The engineering unit has a Desk Top Procedure DT-E-33 which establishes a standard method for selecting proper splice materials, controlling field designed splice configuration and processing the associated documents. It should be noted that field designed splices are those splices that are designed by the on site engineering unit engineers who have had training

and are certified to determine and specify the necessary materials required for splice kits. The materials are closely controlled and maintained (stored) in a temperature controlled building. Each splice kit is assembled and sealed in plastic containers which when opened can not be resealed. All kits are issued for specific connections and are closely controlled to insure that they are properly installed.

The inspection guidance and acceptance criteria are contained in Procedure ED-T-08 Cable Termination. A check list signoff is contained in this procedure for QC documentation of the in-process inspection as it is performed and when required. The inspector observed the termination of power cables 2AHJB0780 and 2AH2628WB, which incorporated HST kits, in EPA 2APS 21. The termination of cables using HST kits located in 480V. Control EPA 2APS 22 were examined as were several instrumentation cable terminations located in instrumentation EPA 22PY46.

It was noted that during installation of the heat shrink materials care was taken to insure that the materials were cool before proceeding to the next step. The workers advised the inspector that the cooling assured that the materials had adhered properly. The previously completed HST connections observed by the inspector exhibited the proper seal lengths and bend radius of the splice was carefully controlled.

Within the areas examined no violations or deviations were identified.