



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION II  
101 MARIETTA ST., N.W., SUITE 3100  
ATLANTA, GEORGIA 30303

Report Nos. 50-566/81-7 and 50-567/81-7

Licensee: Tennessee Valley Authority  
500A Chestnut Street  
Chattanooga, TN 37401

Facility Name: Yellow Creek

Docket Nos. 50-566 and 50-567

License Nos. CPPR-172 and CPPR-173

Inspection at Yellow Creek site near Iuka, Mississippi

Inspector: *C. M. Upright for*  
K. W. Wright

*7/10/81*  
Date Signed

Approved by: *C. M. Upright*  
C. M. Upright, Section Chief  
Engineering Inspection Branch  
Engineering and Technical Inspection Division

*7/10/81*  
Date Signed

SUMMARY

Inspection on June 1-5, 1981

Areas Inspected

This routine unannounced inspection involved 40 inspector-hours on site in the areas of site procurement; receiving, storage, and maintenance; QA inspection of civil work performance (concrete).

Results

Of the three areas inspected, no violations or deviations were identified in two areas; one violation was found in preventive maintenance area - (Failure to follow preventive maintenance procedure - paragraph 6.C.)

## REPORT DETAILS

### 1. Persons Contacted

#### Licensee Employees

- \*L. S. Cox, Construction Engineer
- \*G. G. Wages, Assistant Construction Engineer, QC
- \*J. N. Holladay, Supervisor, Project QA Unit
- \*S. Carr, Assistant Construction Engineer, Project Engineering
- \*R. G. Delay, Supervisor, Materials & Civil, QC
- \*B. B. Whitaker, Supervisor, Material Services Unit
- \*F. T. Carroll, Material Services Unit, QC
- \*M. D. Harris, Material & Civil, QC
- J. Johnson, Material Services Unit, QC
- J. Rodgers, Material Services Unit Group Leader, QC
- L. W. Burnett, Material Services Unit, QC
- J. Frawly, Materials Officer
- C. F. Willingham, Materials & Civil QC, Placement Inspector
- R. G. Qualls, Materials & Civil QC, Batch Plant Inspector
- R. D. Wammack, Materials & Civil QC, Laboratory Testing Inspector
- R. White, Materials & Civil QC, Laboratory Testing Inspector
- D. W. Leblanc, Materials and Civil QC, Laboratory Testing Inspector

\*Attended exit interview

### 2. Exit Interview

The inspection scope and findings were summarized on June 5, 1981 with those persons indicated in paragraph 1 above.

### 3. Licensee Action on Previous Inspection Findings

Not inspected.

### 4. Unresolved Items

Unresolved items were not identified during this inspection.

### 5. Site Procurement

#### a. Documents Examined

- (1) TVA Topical Report (TVA-TR75-1A) Rev. 4 Section 17.1A.4 - Procurement Document Control
- (2) SAR Section 1.4, Identification of Agents and Contractors
- (3) SAR Section 6.3, Emergency Core Cooling System

- (4) Procurement CEP 4.01, Rev. 12, Procurement Document Control
- (5) Procedure CEP 7.01, Rev. 6, Evaluation and Selection of Suppliers
- (6) Quality Assurance Program Policy, QAPP-1 Rev. 1 Procurement Document Control
- (7) QAPP-7.3, Rev. 4, Evaluation and Selection of Suppliers
- (8) Quality Assurance Procedure, QAP-4.1, Rev. 6 Procurement Document Control
- (9) OEDC QA Manual for ASME Section III Nuclear Power Plant Components NCM Sec. 3.0, Procurement Control
- (10) Procedure SOP 19, Rev. 6, Routing of Site-Originated Procurement Documents
- (11) TVA contract 77K60-84840-2, High-Pressure Safety Injection Pumps
- (12) CE Specification 14074-PE-410 Rev. 6 Drawing C-4X11-8CA86X6B, Rev. 2
- (13) TVA Contract 572063, Miscellaneous Fasteners
- (14) TVA Contract 572020, Stainless Steel Plate
- (15) TVA Contract 572022, Embedded Bolt Coupler Assemblies

b. Quality Assurance Program

Table 17.1A-4(T) of the Topical Report commits to implement ANSI N45.2.13-1976 for the control of procurement of equipment, materials and services.

TVA Division of Engineering Design (DED) serves as the principal designer, architect engineer, and contractor for the balance of plant equipment, and is responsible for ensuring that the technical requirements of the Nuclear Steam Supply contracts are met. The TVA Division of Construction is responsible for constructing the plant. The nuclear steam and other major elements and systems are supplied by Combustion Engineering Inc.

Site originated construction procurement by field purchase orders (FPO) for permanent and engineering controlled materials is subject to strict monetary (\$1000 maximum) and approval authority restraints.

The site may purchase equipment/materials for which the site has an ENDES approved specification and QA requirements.

The site may make "Requests for Delivery" for equipment/materials on already existing Indefinite Quantity Term (IQT) contracts.

In general contractor service contracts are prepared by ENDES for the site unless prior agreements were established which directed site procurement to requisition, award and administer the contract.

Selection of suppliers furnishing site-generated procurements is accomplished by at least one of the following methods:

- . concurrence with suppliers acceptability by ENDES Quality Assurance Branch (QAB) Audit Section
- . ENDES QAB Supplier Index
- . holders of a valid ASME "Quality System Certificate"
- . based on supplier's past performance (not applicable for ASME code items)
- . for construction initiated service contracts with suppliers not previously evaluated by ENDES, review of the suppliers QA program and obtain site QA unit concurrence.
- . by an ENDES preaward survey

c. Implementation

The inspector reviewed the documents listed above and discussed procurement functions and audits conducted of procurement activities with responsible TVA personnel at the site.

The inspector selected a Combustion Engineering procurement specification (Unit 1 High Pressure Safety Injection Pumps) and three TVA site procurement specifications (embedded bolt coupler assemblies, stainless steel plate, miscellaneous fasteners) for review to determine the following:

- . that specified design parameters were in accordance with SAR or other AE/licensee specifications
- . that procurement specifications identify applicable codes and standards
- . 10CFR21 requirements were imposed where applicable
- . the supplier was on the approved list of suppliers
- . applicable QA requirements were imposed

if source inspections were required

the information required by the licensee to be documented on Certificates of Conformance was acceptable

The inspector conducted discussions with selected TVA personnel concerning procurement procedures to verify that they were knowledgeable of their responsibilities and duties.

No items of violation or deviations were identified in the procurement area.

6. Receiving Inspection, Storage and Maintenance

a. Documents Examined

- (1) TVA Topical Report (TVA-TR75-1A) Rev 4
  - Section 17.1A.7, Control of Purchased Material, Equipment and Services
  - Section 17.1A.8, Identification and Control of Materials, Parts and Components
  - Section 17.1A.13, Handling, Storage, and Shipping
- (2) Procedure CEP 7.02, Rev 8, Receiving Inspection
- (3) Procedure CEP 7.04, Rev 2, Transfer of Safety-Related Items
- (4) Procedure CEP 8.01, Rev 3, Identification and Marking of Materials, Parts and Components
- (5) Procedure CEP 8.02, Rev 5, Materials, Parts and Component Control
- (6) Procedure CEP 13.01, Rev 4, Handling of Nuclear Components
- (7) Procedure CEP 13.02, Rev. 4, Storage and Preservation of Materials Components, and Systems
- (8) Procedure CEP 13.03, Rev 1, Warehouse Storage Area Inspection
- (9) QAPP 7, Rev 2, Control of Purchased Material Equipment and Services
- (10) QAPP 7.1, Rev 0, Transfer of Items for Construction Use
- (11) QAPP 8, Rev 0, Identification and Control of Materials, Parts and Components

- (12) QAPP 13, Rev 0, Handling, Storage and Shipping
- (13) NCM Sec 3.6, Rev 10, Receiving Inspection, Storage, Preservation and Issuing of Code Items
- (14) Procedure SOP-48, Rev. 0, In-Place Storage
- (15) Procedure SOP-49, Rev. 1, Preventive Maintenance Program
- (16) Audit YC-L-79-02, Receipt Inspection - Concrete Materials
- (17) Audit YC-G-80-01, Receiving, Storage, Preservation and Maintenance - NSSS Items
- (18) Audit YC-S-80-01, Containment Vessel CB&I
- (19) Audit YC-G-80-02, Site Originated Procurement Document Control
- (20) Audit YC-E-80-04, Motor Storage and Preventive Maintenance
- (21) Audit YC-E-80-05, Electrical and Instrumentation Control Panel Storage and Preventive Maintenance
- (22) Audit YC-G-80-12, Preventive Maintenance of Safety-Related Equipment

b. Quality Assurance Program

Table 17.1A-4(T) of the Topical Report commits to implement Regulatory Guide 1.38 which endorses ANSI 45.2.2-1972. The licensee receives, stores and handles equipment and materials at the site for items procured by either TVA or its NSS supplier. TVA monitors the receiving and storage of CBI's containment material furnished, and their fabricating activities.

c. Implementation

The inspector examined the licensee's system established as detailed in the above listed procedures for conducting receiving inspection, handling, storage and maintenance of materials and equipment. The facilities utilized were examined; hoisting, rigging tools and equipment observed, typical documentation for several receiving packages to include; receiving reports, worksheet cards, receiving inspection checklists, certificates of conformance, material test reports, and shipping releases were checked for acceptability, legibility, completeness and for review by QC. The inspector conducted discussions with responsible TVA materials supervisors, QC receiving inspectors and warehouse service unit personnel pertaining to their procedural responsibilities and found them competent, knowledgeable and experienced in their respective duties performed.

Several certificates of conformance were chosen from various contracts at random for examination and were found to properly identify the purchased items, identifying specific requirements the items met or did not meet, and were signed by an appropriate member of the supplier's QA group where applicable.

The inspector examined the storage facilities of warehouse "A" (Levels A and B), warehouse "B" (Level C), the paint building (Level A) and various field laydown areas (Level D). Random items and materials selected in these areas were found stored in their proper environment as described in the appropriate Receiving, Inspection, Storage and Preventive Maintenance Manual Instruction or by the manufacturer's recommendation. The subject storage facilities were examined for proper controlled access, that protection from damage during storage was adequate, cleanliness, proper stacking and cribbing of items, proper control of items in storage to conclude identification and marking, proper use of desiccant humidity indicators and purging systems for required equipment, that shelf life of materials were adequately controlled, and that records were being maintained of storage conditions and were current.

The inspector examined the "Warehouse Storage Area Inspection Reports" performed by QC for the period January 1980 through May 1981. The inspector also examined QA audits (6a(16) through 6a(22)) conducted in the areas of receiving inspection, storage and maintenance. These reports reflect that receiving, storage and maintenance conditions were being met and that any discrepancies noted received proper, timely corrective action.

The inspector examined the preventive maintenance inspection documentation maintained in the document control vault for the fuel pool cooling water pump and motor (contract 84840-2, SN809202) and for Unit 1's reactor coolant ECCS piping (contract 84840-2, S/C KNZY1). These records were examined for the period January 1981 through May 1981 to ensure the required maintenance inspections had been performed on these items at their intended frequency. No problems were encountered with the fuel pool cooling water pump and motor. Receiving Inspection, Storage and Preventive Maintenance Procedure (RIS and PM) M-460 entitled, "Reactor Coolant Piping Assemblies" requires a prescribed preventive maintenance inspection to be conducted on the subject piping assemblies every two weeks. Prevent Cards examined for the subject piping revealed that there was no documentary evidence (signature of inspector and date of inspection) to verify that this preventive maintenance inspection had been conducted for the weeks beginning March 23, April 20, and May 18, 1981 as required by Procedure RIS and PM M-460.

The above example of "Failure to follow preventive maintenance procedure" was identified to the licensee as violation 50-566/81-07-01.

7. QA Inspection of Civil Work Performance (Concrete)

The inspector observed the preplacement condition, partial placement, partial placement inspection and testing of plastic concrete for pour number A1-X12, the West Unit 1 Reactor Building Auxiliary Area ERCW Valve Vault. This inspection was conducted to determine whether site work is being performed in accordance with NRC requirements and SAR commitments; the QA/QC program is functioning in a manner to assure requirements and commitments are met; and to assure that prompt and effective action is taken to achieve permanent corrective action on significant discrepancies.

The following acceptance criteria were examined to verify the inspection objectives:

a. PSAR, Specifications, Procedures and Drawings

- (1) Section 3.8 of the PSAR
- (2) TVA Specification G-2, Plain and Reinforced Concrete
- (3) Procedure . QCI 201, 202, 204, 207, 208 and 212
- (4) Drawing Numbers

4RE0822-R7-01-R3, ERCW Valve Vault-Outline and Reinforcement

4AN101-12 R0, Concrete Pour Designations and Progress Chart for ERCW Valve Vault

The inspector reviewed the above listed acceptance criteria utilized for the subject concrete placement to determine if the latest revisions were employed and in agreement with the SAR; to determine if these documents adequately describe critical points and methods of installation as well as inspection and test hold points - to properly reflect design intent.

b. Field Inspection

The RII inspector found the forms to be tight, clean and level. Observations indicated the rebar was properly installed and clean. Placement activities pertaining to delivery time, free fall, flow distance, layer thickness and consolidation conformed to specifications. Examination of truck trip tickets indicated that the specified design mix was being delivered. Concrete activities were continuously monitored by QC personnel. Samples for temperature, slump, air content, unit weight and test cylinders met frequency and acceptance criteria. Examination of the batch plant and storage facilities showed that inspection, materials, and record controls were in accordance with



acceptance criteria. The RII inspector's discussions with craftsmen and observation of their work performance during the subject concrete placement indicated the crafts level of knowledge pertaining to their work tasks was adequate to provide the required quality of workmanship.

c. Quality Control

- (1) The RII inspector reviewed the following inspection records associated with the subject concrete placement to determine their adequacy, whether deficiencies submitted by QC inspectors received proper corrective action where applicable; and if work and work controls were adequate: the concrete pour card, sieve analysis of concrete aggregates, free moisture calculations, reinforcing steel inspection records and the concrete test specimen data work sheet.
- (2) The RII inspector reviewed the applicable QA/QC procedures (paragraph 7.a) to determine if the frequency, timing and acceptance criteria for the inspections are adequate.
- (3) The number of QC inspectors provided for the coverage of the subject placement was satisfactory. Discussions were conducted with randomly selected batch plant, laboratory testing and placement inspectors to determine if their knowledge of the activities they were observed inspecting was adequate, and to determine whether they felt their findings received proper management attention. Examination of the subject inspector's training and qualification records revealed they were qualified in the duties they performed for the subject placement.

d. Nonconforming Items Reports (NCRs)

The RII inspector reviewed selected reports of concrete construction discrepancies that have occurred during various concrete placements to verify that:

- (1) the action taken corrected the items
- (2) the items were considered for reportability to NRC
- (3) the instituted effective action prevented recurrence
- (4) the licensee has an adequate program to detect trends in discrepancies.

Civil NCRs reviewed included the following: YC-171, YC-170, YC-162, YC-157, YC-155, YC-152, YC-147, YC-138 and YC-137.

## e. Materials and Equipment

Examination of the batch plant indicated materials were being controlled and accurate batch records were being generated. Storage of materials (aggregates, cement and admixtures) were observed to be in accordance with specification requirements. Batch plant activities were continuously monitored by a QC inspector. The RII inspector noted some of the central mixer and truck bed clean-up operations underway prior to the start of the evening placements. Various laboratory testing equipment, concrete curing room gages, plastic concrete testing equipment and batch plant scales were examined for current calibration evidence.

## f. Audits

- (1) YC-C-80-15, Reinforcing Steel Installation and Inspection
- (2) YC-C-81-01, Structural Steel Erection and Inspection
- (3) YC-L-81-02, Concrete Materials Sampling and Testing
- (4) YC-C-81-02, Concrete Placement and Curing

The RII inspector reviewed the above listed site QA audit performed on various phases of concrete activities to determine whether the licensee audit results indicate when applicable that:

- . Drawings are in agreement with SAR
- . Installation is according to drawings and specifications
- . Craftsmen are qualified and competent to perform the work they are doing
- . Field engineers' reports are technically accurate
- . QC procedures and inspectors meet requirements
- . CDRs and NCRs are accurate
- . Materials and equipment meet specifications.

These audits were also examined to determine if they were meaningful, effective, reflect quality performance and whether corrective actions taken as a result of audit findings were proper, timely and complete.

Within the above areas of concrete placement activities examined, no violations or deviations were identified.