



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

Report Nos. 50-553/31-03 and 50-554/81-02

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

Facility Name: Phipps Bend

Docket Nos.: 50-553 and 50-554

License Nos. CPPR-162 and CPPR-163

Inspection at Phipps Bend site, near Kingsport, Tennessee

Inspector:

J. R. Harris
J. R. Harris

4-8-81
Date

Accompanying Personnel: B. Lunsford

Approved by:

T. E. Conlon
T. E. Conlon, Section Chief,
Engineering Inspection Branch
Technical and Engineering Inspection
Division

4-8-81
Date

SUMMARY

Inspected on March 18 - 20, 1981.

Areas Inspected

This routine, unannounced inspection involved 25 inspector-hours onsite in the areas of structural concrete, drawing controls, inspection controls on embedments and previous inspection items.

Results

Of the four areas inspected, no apparent violations or deviations were identified in three areas; one violation was found in one area (Failure to control drawing distribution in accordance with procedure requirements, Paragraph 5).

REPORT DETAILS

1. Persons Contacted

Licensee Employees

- *W. K. Kelleghan, Project Manager
- *G. W. Wadewitz, Construction Manager
- J. C. Cofield, Assistant Construction Engineer, Project Engineer
- *G. W. Hogg, Supervisor, Materials QC
- *D. E. Hitchcock, Supervisor, Site QA Unit
- *T. V. Abbatiello, Assistant Construction Engineer, QC
- *L. H. Clark, Assistant Construction Engineer, Engineering Service
- *S. D. Love, Regulatory Staff
- A. Hooks, Steamfitter Sketch Foreman
- L. Varner, Ironworker Structural Foreman
- H. Whedbee, Steamfitter, Re-bar Yard Office
- *A. A. Richardson, Civil Structural Office

Other licensee employees contacted included five construction craftsmen, three technicians, and three office personnel.

*Attended exit interview

2. Exit Interview

The inspection scope and findings were summarized on March 20, 1981 with those persons indicated in Paragraph 1 above. The violation described in Paragraph 5 was discussed.

3. Licensee Action on Previous Inspection Findings

(Open) Violation (553/80-18-01, 50-554/80-16-01) Failure to place reinforcing steel in accordance with drawing and procedure requirements. The inspector examined the licensee's response dated February 26, 1981. This item remains open pending examination of implementation of the response by NRC Region II.

4. Unresolved Items

Unresolved items are matters about which more information is required to determine whether they are acceptable or may be violations or deviations. New unresolved items identified during this inspection are discussed in paragraphs 5 and 6.

5. Independent Inspection Effort

a. The inspector examined the following areas:

- (1) Concrete and soils testing laboratory
- (2) Audit number PB-M-80-01
- (3) Drawing controls
- (4) Inspection controls on embedments

b. Examination of the above disclosed the following inspector identified items:

- (1) Examination of controls on drawing numbers R1-AM01, R-7 and 3TE1426 RF-01, R-2 disclosed that these drawings were not being controlled in accordance with procedure CEP 6.01. Paragraph 2.2 of CEP 6.01 requires the Document Control Unit (DCU) to issue drawing revision and the recipient of the revised drawing to return the superceded drawing or titleblock of the superceded drawing to DCU. Examples of failure to follow procedure are as follows:

- (a) Drawing R1-AM01-1, R-7 (Revision 7 is the current revision). The Steamfitter Sketch Foreman had revision 5, 6, and 7 but had not returned revision 5 and 6 to DCU. The Ironworker Structural Foremen did not have revision 7. The Reinforcing Bar Yard Foreman and the Ironworker Rodbuster Office Foreman had revisions 5 and 6, but had not returned superceded revision 5 and had not received revision 7.
- (b) Drawing 3TE1426 RF-01, R-2. The Turbine Building Steamfitter Foreman returned the titleblock of revision 1 to DCU on January 22, 1981, per a lost document request but had never received revision 2, the current working revision.

Failure to follow procedure CEP 6.01 on issuing and distribution controls of controlled drawings was identified to the licensee as Violation number 50-553/81-03-01 and 50-554/81-02-01, Drawing Controls.

- (2) Examination of inspection controls on embedments and pipe sleeves disclosed that while embedments and pipe sleeve installations and inspections are being controlled, there appears to be confusion between the mechanical QC and surveyors role in performing line and grade inspection on installed pipe sleeves. QCI-M-110 R-3, requires the mechanical inspector to perform line and grade inspections for embedded piping and sleeves. Discussions with responsible engineers disclosed that the surveyors are performing line and grade inspections and are signing the concrete pour card as documentation of the inspection. The mechanical QC inspectors are not performing the line and grade inspection as stated in the procedure but are verifying that the surveyors performed the line and grade inspection and are documenting their inspection on TVA form 10112, Embedment Log. The site QA unit documented a deficiency in audit number PB-M-80-01 which identified that the

mechanical QC inspectors were not performing the line and grade inspections of embedment sleeves as specified by procedure QCI-M-110, R-3. This deficiency is open and is currently being addressed by management. Inspection requirements for line and grade inspection of embedment sleeves and piping was identified to the licensee as Unresolved Item 50-553/81-03-02 and 50-554/81-02-02, Inspection Controls on Embedments.

6. Containment (Structural Concrete II) - Observation of Work

The inspector examined partial placement of pour number R1-AM01-2E-1 in the Unit 1 Reactor Shield Building. Acceptance criteria examined by the inspector appear in the following documents:

- (a) Section 3.8 of the PSAR
- (b) C. F. Braun specification 300-01, Concrete
- (c) TVA Specification G2, Plain and Reinforced Concrete
- (d) Procedure QCI-C-201 through QCI-C-210 and QCI-C-212
- (e) Drawing numbers R1-AM01-1, R-7; S-146A, R-5; S146B, R-3; S-146, R-6; S-147A, R-5; S-147B, R-3; S-147C, R-6; and Y-013, R-5.

Observations showed that forms were tight and clean and re-bar was proper / installed and clean. Preplacement inspection was indicated by the signed pour card. Placement activities pertaining to freefall flow distance, layer thickness and consolidation conformed to specifications. 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, material, and record controls were in accordance with acceptance criteria.

Examination of placement controls disclosed that there does not appear to be an adequate method for tracking the time interval between mixing and placing concrete. Paragraph 6.9 of Specification G-2 requires that the concrete shall generally be placed within 30 minutes after mixing. The specification indicates the time limit can be extended if the slump is no more than two inches less than specified, if there is no segregation and if the concrete can be adequately consolidated. Tracking of the time interval between mixing and placing concrete was identified to the licensee as Unresolved Item 50-553/81-03-03 and 50-554/81-02-03.