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

Report Nos. 50-518/82-06, 50-519/82-06, 50-520/82-06 and 50-521/82-06

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

Facility Name: Hartsville Nuclear Plant

Docket Nos. 50-518, 50-519, 50-520 and 50-521

License Nos. CPPR-150, CPPR-151, CPPR-152 and CPPR-153

Inspection a Hartsville site near Hartsville, Tennessee

Inspectors: K. Butcher for — 5/13/82
J. F. Schapker — Date Signed

F. S. Cantrell — 5/14/82
Date Signed

Approved by: F. S. Cantrell — 5/14/82
F. S. Cantrell, Section Chief, Division of Resident and Reactor Inspection — Date Signed

SUMMARY

Inspection on April 1-13, 26-30, 1982

Areas Inspected

This routine, announced inspection involved 51 inspector-hours on site in the areas of seismic category 1 concrete (Unit A-2), open items (all units), independent inspection effort (A-1 and A-2), and site deferral preparation (A-1 and A-2).

Results

Of the 3 areas inspected, no violations or deviations were identified.

DETAILS

1. Persons Contacted

   Licensee Employees

   *R. T. Hathcote, Site Project Manager
   *W. T. Quinn, Site Construction Engineer
   J. W. Henry, Unit Supervisor, QC Welding
   H. S. Sheppard, Assistant Construction Engineer, Quality Control
   F. E. Laurent, Unit Supervisor, STRIDE Mechanical Project Engineering
   G. A. Gonsalves, QA Unit Supervisor
   J. T. McGehee, Engineering Management Assistant
   E. D. Loope, Unit Supervisor, QC Hangers

   Other licensee employees contacted included document control personnel, construction craftsmen, QC technicians, and project engineers.

   *Attended exit interview

2. The inspection scope and findings were summarized with the Site Project Manager/or his representatives on April 13, and 30, 1982.

3. Licensee Action on Previous Inspection Findings

   (Closed) IFI 518, 520/82-03-02 Visual inspectors record level of certification on applicable inspection records. The inspector reviewed records of inspections performed and verified that the inspector's level of qualification for visual inspection is now being noted on the form. In addition the inspector reviewed a sample of previous records, to verify the inspector's qualifications were adequate to perform visual examinations required.

4. Unresolved Items

   Unresolved items were not identified during this inspection.

5. Independent Inspection Effort

   The inspector made 3 surveillance tours during which the status of project work was noted, and construction activities were inspected on nuclear safety-related structures, systems and components.

   The inspections included:

   a. Inspection of Ametek after cooler heat exchangers referenced in Investigative Report 99900059/81-02 (Region I), in which allegations that the heat exchangers, which were fabricated with copper-nickel clad tube sheets and copper-nickel tube-to-tube sheet welds, "were observed

by the alleger leaving the shop with holes in the cladding that could be seen with the naked eye".

Eight of the above after coolers are on site. Two of the after coolers were opened by the licensee, to inspect the tube sheet area. The inspectors observed the tube sheet area of the after coolers. Large amounts of corrosion was evident of which some pitted the tube sheet. No tube-to-tube sheet welds were present on the two units observed.

The inspector requested design drawing and specification data for the units to determine the tube sheet cladding and tube sheet weld requirements. The after coolers are N stamped ASME, Section III, Division II, and are installed on Turbonetics hydrogen mixing blowers.

This item will remain open pending further investigation by the inspector. IFI 518, 519, 520, 521/82-06-01 "Ametek after cooler tube sheet clad discrepancies".

b. The reactor pressure vessel shield wall, Unit A-1, developed a crack in the outer shell plate, located at azimuth 51°F, and between elevation 18' 4" and 21' 11". Apparent cause was freeze damage due to water entrapment in a void area behind the outer wall where the grout was not filled in. The outer wall is completely separated for a distance of about 35 inches with the crack extending from each end to a total of 43 inches; the outer wall is pushed 1¼ inches outward at the center of the flaw. The licensee has reported the flaw in accordance with regulatory requirements, and issued a nonconformance report. Due to the deferral of Hartsville NPP, the licensee does not intend to repair or complete investigation as to cause, at this time.

The nonconformance report will be left open until restart of construction. This item will be followed up at restart of construction. IFI 518/82-06-02, "Biological Shield Wall Crack, Unit A-1".

c. Open Item Control: Newly issued Nonconformance Reports (NCRs), significant Quality Control Inspection Reports (QCIRs) and QA Unit audit findings were reviewed for pertinence to the inspection program and for adequacy of corrective actions.

Review of QCIR's and NCR's did not disclose any violations or unresolved items.

Within the areas inspected no violations or deviations were identified.

6. Licensee Identified 50.55(e) Items

a. Previously Identified Items

(Closed) CDR 518, 519, 520, 521/82-03 Engineering Change Review and Handling

ECN's associated with Hartsville NPP are in compliance with the provisions of EN DES-EP 4.02.

This deficiency has been determined to have no application to the Hartsville site.

The following interim reports were received from the licensee on previously identified items. The inspector reviewed these reports and found that none contained information which would permit closure. Follow on reports are scheduled at later dates.

(Open) CDR 518, 520/82-06, 519, 521/82-05 - Resolution of Unanticipated Vibratory Loading Concerns NCR W-30-P.

Next scheduled report due September 24, 1982.

(Open) CDR 518, 519, 520, 521/82-01 - Generic Deficiency in Design Review.

Next scheduled report due December 17, 1982.

(Open) CDR 518/81-28, 520/81-27 - Deficiency Bethlehem Steel Company, Galvanized A325 Bolts.

Next scheduled report due June 1, 1982.

(Open) 518, 520/81-10-03 - Review of Purchase Request Forms Initiated by Construction (HTRD 518/871-14, 520/81-12).

Next scheduled report due July 15, 1982.

(Open) 518, 519, 520, 521/81-03-02 - Completion of As-Built Drawings (HTRD-81-04).

Next scheduled report due July 15, 1982.

(Open) 518, 519, 520, 521/81-02-02 - Pressure Drop in Essential Service Water Piping (HTRD 81-02).

Next scheduled report due July 15, 1982.

(Open) 518, 519, 520, 521/80-13-02 - Standby Gas Treatment System Charcoal Absorbers (NCR HTN NEB 80-02).

Indefinite corrective action due to deferral.

7. Seismic Category I Concrete

Forming, installation of rebar, prepouring inspection, placements and post placement curing were inspected as work continued in the A plant reactor building, fuel and auxiliary buildings. Specific placements inspected

included: A2F-22D and A2F-198, 48 cubic yards in the A-2 fuel building; and A1F-27G, 10 cubic yards in the A-1 fuel building.

Forming and rebar placement in the preparation for placements in other areas were also inspected.

During inspection of activities for structural concrete in these areas, conformance with the requirements of C. F. Braun Specification 300-0, Revision 8, "Concrete", TVA Construction Specification G-2, QCI C-201, Revision 4, and CEP 9.02, Revision 5, was verified by the inspector.

Within the areas inspected no violations or deviations were identified.

8. Review of Deferral Activities

The inspector with the Section Chief for Reactor Projects, Section 1B, toured the site to review action taken to preserve installed and stored equipment, structures and welds. Equipment preservation is presently being controlled by the licensee's RS and PMI Manual (Receiving, Storage and Preventive Maintenance Instructions) and will continue during deferral.

Structures such as installed rebar not covered with concrete, will be covered with a concrete slurry for approximately one foot from the concrete. If remaining rebar deteriorates beyond usability, it will be scrapped and new rebar will be cadwelded to the protected rebar. Equipment observed installed or stored within the plant was protected and heated--where required.

Hanger welds, structural welds within the plant are not adequately protected at this time, and should be painted to assure no deterioration takes place. The installed reactor vessels in A-1 and A-2 were observed to have deteriorated rubber on the nozzle covers, which may be inadequate to prevent moisture leakage. Rebar protective slurry observed by the inspector was not applied adequately (360°) to protect the rebar. This activity has just begun, the inspector will monitor this as well as all other deferral preparation activities.

These items were discussed with the site construction engineer in the exit who agreed to take necessary action to correct any deficiencies.

The inspector is currently reviewing General Construction Specification G-65 Revision 1 titled: "Protection, Storage, and Preparation for resumed construction of Civil Engineering Materials for delayed Construction" for adequacy of protection of referenced materials for long term storage and will inspect on its implementation during future inspections.

Within the areas inspected no violations or deviations were identified.