U. S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION V

Report No. 50-528/80-22
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Docket Nos. 50-528, 50-529, 50-530 License Nos. CPPR-141, CPPR-142, CPPR-143

Licensee: Arizona Public Service Company
P. O. Box 21666
Phoenix, Arizona 85036

Facility Name: Palo Verde Nuclear Generating Station - Units 1, 2 and 3

Inspection at: Palo Verde Construction Site, Wintersburg, Arizona

Inspection Conducted: December 1-31, 1980

Inspectors: L. E. Vorderbrueggen for — 3/12/81
L. E. Vorderbrueggen — Date Signed
Resident Reactor Inspector

Approved by: D. F. Kirsch for — 3/12/81
D. F. Kirsch, Acting Chief, Reactor Projects — Date Signed
Section 1, Reactor Construction Projects Branch

Summary: Inspection on December 1-31, 1980 (Report Nos. 50-528/80-22, 50-529/80-22, and 50-530/80-22).

Areas Inspected: Routine, unannounced inspection by the resident inspector of construction activities including: followup on a previously identified item of noncompliance; protection of installed reactor vessels and Unit 1 reactor vessel internals; preparations for installation of Unit 1 containment tendons; verification of containment shell/basemat reinforcing steel for Units 1 and 2; installation of safety related piping; resolution of electrical cable tray separation concerns; care and preservation of equipment; and general activities in progress at the site. The inspection involved 55 inspector hours on-site by one NRC inspector.

Results: No items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

a. Arizona Public Service Company (APS)

*E. E. Van Brunt, Jr., Vice President, Nuclear Projects Management
*J. A. Roedel, Manager, Quality Assurance
*W. E. Ide, Site QA Supervisor
G. Pankonin, QA Engineer
R. D. Forrester, QA Engineer
*J. M. Allen, Nuclear Engineering Manager
*A. C. Rogers, Nuclear Engineering Manager
*B. S. Kaplan, Quality Systems Supervisor
*D. B. Fasnacht, Site Construction Manager
*R. J. Kimmel, Field Engineering Supervisor

b. Bechtel Power Corporation (Bechtel)

*W. J. Stubblefield, Field Construction Manager
*D. R. Hawkinson, Project QA Supervisor
*R. M. Grant, Project QC Engineer
C. Nelson, Civil Engineer-Unit 1
L. Afek, Lead Mechanical Field Engineer
R. Hedzik, Lead QC Engineer-Mech/Piping/NSSS
W. Sears, QC Supervisor-Administration

c. Western Concrete Structures, Inc.

K. Guffey, General Superintendent
T. Patel, QC Supervisor

Other persons contacted during the inspection period included construction craftsmen, inspectors and supervisory personnel.

* Management meeting attendees.

2. Licensee Action on Previous Inspection Findings (50-528/80-17/01 Closed) Noncompliance: Failure to provide prescribed maintenance on the motor operators for the Unit 1 main steam and feedwater isolation valves

The corrective action identified in the licensee's response, dated December 17, 1980, was reviewed and the subject valves were observed in their installed location. Each valve was totally enclosed by a heavy plastic cover for protection from construction generated dust and dirt. The inspector verified that the valves and their respective operators had been added to the plant equipment maintenance program and are now being maintained on a monthly basis. The inspector also reviewed the measures that have been initiated by Bechtel to assure that the equipment maintenance list is complete and that items will not be inadvertently omitted in the future. This item is closed.

3. Protection of Installed Reactor Vessels

Guarded access control to the Unit 1 reactor pool area continues to limit the entry of personnel, equipment, tools and materials to those which are authorized. When there is no work activity inside the vessel, a plastic protective cover is kept in place over the vessel flange to prevent the entry of foreign objects and debris.

Nozzle welding operations continued on the Unit 2 reactor vessel. Nozzle openings not being worked are covered for protection from adjacent construction activities. Work platforms and ladders inside the vessel are metallic or of treated wood so as to minimize fire hazards. The top of the vessel is covered to prevent the accidental entry of foreign objects and debris.

The inspector found that the procedures for protection of the installed reactor vessels were being implemented.

4. Unit 1 Reactor Vessel Internals

During this reporting period, work continued on the installation of the six sets of shims which attach to the sides of the six core stabilizing lugs on the lower wall of the reactor vessel. These lugs mate with the snubber lugs on the outside diameter of the core support barrel. The work is being performed by Combustion Engineering, Inc. under subcontract to Bechtel, with workmen furnished by the Boilermaker craft. The components are kept covered and protected except when work is actually progressing.

It appeared to the inspector that the procedures for installation and protection of the vessels were being followed.

5. Unit 1 Containment Tendon Installation

The inspector met with site personnel of Western Concrete Structures, Inc., the contractor for the containment post-tensioning system, to assess their readiness to begin installation of the stressing tendons. Their QA program and installation procedures have been reviewed and approved by Bechtel, but they have not yet hired the two additional QC inspectors required to complete their staff. The buttress traveling platforms are in place and had been operationally checked out. The tensioning jacks (2) have been tested, but have not yet arrived at the site. Plans were being finalized to pull in three horizontal tendons between buttresses 1 and 3 for the purposes of craft training and final checkout of the equipment.

6. Safety Related Piping Installation

a. Component Installation Activities

The inspector observed various installation work activities associated with portions of the chemical and volume control and safety injection systems at the C level of the Unit 3 auxiliary building. Particular attention was given to the handling and supporting of system components, correctness of configuration, control of welding records in the work area, use of specified materials, control of weld filler metal, absence of defects on component surfaces, and inspection performance by qualified personnel. The applicable requirements are specified in WPP/QCI 202.0 (Piping System Installation) and Specification 13-PM 204 (Field Fabrication and Installation of Nuclear Piping Systems).

No items of noncompliance or deviations were identified.

b. In-process Welding Activities

The inspector examined two welds in Unit 3 to ascertain compliance with requirements of the applicable specifications, codes, standards, and procedures. The welds were:

- Fit up of Weld No. W-001 joining spool 001 to motor operated valve HV-531 in line CH-A-424-20" - refueling water storage tank supply to safety injection pump train A.

- Partially completed Weld No. W-006 joining spool 004 to manually operated valve V-435 in line SI-A-087-10"-LPSI pump A discharge.

A properly filled out Field Welding Check List (WR-5 Form) was present at the work location of each weld with hold points and NDE call-outs specified. The weld identification, material specifications, and interpass temperature were specified on the WR-5 Form. The WR-5 provisions were in accordance with the requirements of the ASME Code, Section III, 1974 edition. Filler metal issue slips and the qualification records of the welders involved were examined and found to be acceptable. The inspector observed that quality control inspection and supervisory surveillance were being performed as required. WPP/QCI 101.0 (Welding Control) along with the two documents identified in paragraph 6.a above, contained the applicable work and inspection requirements for both welds.

No items of noncompliance or deviations were identified.

7. Containment Shell/Basemat Reinforcing Steel

Reinforcing steel had been omitted from certain localized segments of the circumferential joint between the containment exterior wall and the basemat. This omission occurred in all three Palo Verde units. Circumstances associated with this situation were described in IE Inspection Report No. 50-528/80-13, Paragraph 4. The matter was verbally reported to Region V by the licensee on July 1, 1980 as a potential 50.55(e) item and their final written report was submitted on November 6, 1980. At the licensee's request, a meeting was held in the Region V office on November 20, 1980 between the licensee, their technical consultant (Bechtel) and NRC personnel. The meeting was intended to answer any remaining questions that Region V personnel might have about the physical situation, and the nature and validity of the analysis which showed that the structural adequacy of the containment buildings had not been compromised.

Since the licensee's conclusion of structural adequacy, based on the licensee's analysis, rests on the premise that the "as-built" steel reinforcing in the area of interest does indeed conform to the specified material and configuration requirements, the inspector attempted to verify that fact through a review of the relevant installation documentation for the three units. Documents examined included reinforcing steel material certifications, cadweld splice inspection reports, cadweld splice tensile test reports, concrete preplacement checklists, nonconformance reports and construction progress photographs. The areas, as designated by the concrete placement numbers, are C012 and C013 for the building basemat, and C100 for the exterior wall. (Each placement number is preceded by its unit number, i.e., 1C012 for Unit 1, 2C012 for Unit 2, etc.)

All reinforcing steel was of the type specified (ASTM A615 Grade 60). The cadweld splice QC inspection reports were in order and showed a reject rate less than 1 percent (all rejects were replaced). Cadweld tensile test reports showed no breaks below 90,000 psi - the majority being in the range of 95,000 to 105,000 psi. All concrete preplacement check lists identified no such descrepancies and each one listed the noncomformance reports pertaining to that placement. All nonconforming conditions identified in the reports had been corrected in accordance with approved measures. The corrective actions had been examined and approved by the assigned QC inspectors. The construction progress photographs displayed no conditions that would indicate that the installations were deviating from the intended design.

From the documents reviewed, the inspector concluded that the containment basemat-exterior wall junction, on each of the three units, had been built in accordance with the design documents.

8. Electrical Raceway Separation

During surveillance and audit activities by the licensee's site QA personnel, in connection with electrical raceway installation, it was found that clarification and additional details were needed on the electrical drawings in order to assure that the separation requirements of Regulatory Guide 1.75 would be satisfied. The inspector discussed this matter with the licensee and reviewed the action taken by Bechtel to assure that the installation will meet specified requirements. The Bechtel actions included a review of all drawings and unique identification of all cable trays that must have covers or barriers installed, issuance of a Design Change Notice (DCN 49) to clarify separation distance requirements for conduit, and reinspection and walkdowns of installed raceway prior to signoff of the EE580 raceway installation card. A new procedure was also being developed pertaining specifically to installation and inspection of fire barriers, tray covers and conduit sealing.

The inspector had no further questions on this matter at this time.

9. Plant Tours

Several times during this reporting period the inspector toured the plant site to observe general housekeeping conditions and the care, handling and preservation of equipment. Particular attention was given to: the handling of heavy pipe spools and valves during welding fit-up; presence of covers over installed equipment for protection from adjacent work activities; adequate caps over pipe openings not being worked on; and adequacy of dunnage under stored valves, pipe spools and other components. No welding electrode stubs were found lying around the various work areas.

No deviations or items of noncompliance were identified.

10. Management Meetings

On December 5, 1980 and January 9, 1981 the inspector met with the licensee representatives identified in Paragraph 1 to summarize the scope of the inspection activities and review the inspection findings, as described in this report.