

U.S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-528/82-08
50-529/82-04
50-530/82-04

Docket No. 50-528, 50-529, License No. CPPR-141, -142, Safeguards Group
50-530 143

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: March 1 - April 2, 1982

Inspectors: *[Signature]* 5/6/82
L. E. Vorderbrueggen Date Signed
Senior Resident Inspector

Date Signed

Date Signed

Approved By: *[Signature]* 5/6/82
J. H. Eckhardt, Acting Chief Date Signed
Reactor Projects Section 1

Summary:

Inspection on March 1 - April 2, 1982 (Report Nos. 50-528/82-08, 50-529/82-04, and 50-530/82-04)

Areas Inspected: Routine, unannounced inspection by the resident inspector of construction activities associated with the installation of Unit 1 Train "A" diesel generator control cabinets and load distribution switchgear; quality records pertaining to Unit 1 Train "D" 125 volt battery and associated racks; follow-up of licensee action on previous inspection open items; follow-up of 50.55(e) items; and general activities in progress throughout the plant site. The inspection involved 95 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
*D. B. Fasnacht, Nuclear Construction Manager
*R. J. Kimmel, Field Engineering Supervisor
*W. E. Ide, Site Quality Assurance Supervisor
R. Forrester, Quality Assurance Engineer
D. Wittas, Quality Assurance Engineer
P. Moore, Quality Assurance Engineer
M. T. Sweihart, Operations Quality Assurance Engineer

b. Bechtel Power Corporation (Bechtel)

*W. J. Stubblefield, Field Construction Manager
S. M. Nickell, Project Superintendent
*A. K. Priest, Project Field Engineer
*R. M. Grant, Project Quality Construction Engineer
*J. E. Pfander, Quality Assurance Engineer
H. Mear, Quality Construction Supervisor

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

*Management Meeting attendees.

2. Licensee Action On Previous Inspection Items

a. (Closed) Unresolved Item (50-529/81-12/01): Possible Cold Working of Pipe Spool Ends During Fitup

Bechtel Engineering demonstrated by means of a stress analysis that the NRC observed misalignment correction of the 14-inch spray header pipe spools did not result in unacceptable material degradation. The calculations were based on the ASME Section III Code allowances of 0.5 percent induced strain after forming operations and 8 percent ovality for formed pipe bends. It was seen that the subject 14-inch pipe mismatch could be as much as 0.95 inches before the 0.5 percent induced strain limit would result.

In order to provide future guidance for the piping field engineers, a table of maximum mismatch dimensions, that may be corrected by the use of clamps without inducing strain beyond 0.5 percent, was developed for all sizes and schedules of pipe in use at Palo Verde. This tabulation is to be included in Specification 13-PM-203, Field Fabrication and Installation of Nuclear Piping Systems.

This item is closed.

- b. (Closed) Follow-up Item (50-529/81-12/02): Incomplete Main Feedwater Pipe Hanger No. 2-SG-205-HC02

The inspector examined the subject pipe hanger and observed that the required gusset stiffener plates had been installed. A review of the installation records showed that the final QC acceptance inspection had been performed and the hanger had been judged complete and acceptable.

This item is closed.

- c. (Closed) Follow-up Item (50-528/81-15/01): Pressurization of Unit 1 Electrical Penetrations

The penetration manufacturer (Conax) has revised their instruction/maintenance manual to clarify the pressurization requirements. Basically, the Conax Corporation does not consider that it is necessary to maintain pressure continuously to assure mechanical and electrical integrity of the penetration assembly.

This item is closed.

3. Unit 1 - Electrical Components and Systems - Observation of Work

The inspector examined the Class 1E equipment listed below to ascertain that the requirements of the specifications, drawings, and WPP/QCI work and inspection procedures were satisfied.

- a. Train "A" Emergency Diesel Generator No. PEA-G01, associated local control panels, and electrical portions of the engine start system.
- b. 4160-volt switchgear (PBA-S03) supplied by Train "A" D-G in a. above.
- c. 480-volt switchgear (PGA-L31) for motors and motor control centers supplied from the switchgear in b. above.

The examination was directed primarily to the correctness of equipment identification and installation location; inspection during and subsequent to installation; qualifications of personnel; post-installation protection and cleanliness preservation; work and inspection procedure revision control; and identification and control of nonconforming components/materials. The inspector

also reviewed the computerized program being used to assure the completion of remaining work in connection with Modification Change Notices, Design Change Notices and Nonconformance Reports.

No Items of noncompliance or deviations were identified.

4. Unit 1 - Electrical Components and Systems - Review of Quality Records

The records pertaining to the receipt, care, and installation of the electrical components listed below were examined in order to verify their availability and to ascertain that they reflect work accomplishment consistent with the quality requirements and commitments.

- a. 125-volt Battery "D" (1140 ampere hour, No. PKD-F14) and the associated mounting racks.
- b. 125-volt DC Control Center (PKD-M44) and the associated circuit breakers supplied from Battery "D".
- c. 125-volt DC Distribution Panel PKD-D24.

The records review focused principally on material requirements; receipt inspection for shipping damage and verification that purchase order requirements were satisfied; installation inspection and protection after installation; and qualification of personnel.

It was also noted that the associated nonconformance reports were properly controlled and dispositioned. One NCR documented the licensee's finding that the battery performance discharge test required by IEEE Standard 450 was not acceptable as performed by the battery supplier (Exide); the disposition was that the test will be redone as a preoperational checkout by the licensee.

No items of noncompliance or deviations were identified.

5. Review of 50.55(e) Items - All Units

During this reporting period, the inspector reviewed 47 items which the licensee had identified to the NRC as having potential 50.55(e) reportability significance. Each item was documented on a Deficiency Evaluation Report (DER) as required by the procedure. The DER describes the discrepant condition, identifies supporting documents and the corrective action to be taken, and is the basis for the licensee's report to the NRC. Of the 47 DERs reviewed, 9 will require further review by the inspector.

The following 28 DERs were judged by the licensee not to be reportable and the inspector concurs with that decision:

<u>DER NO.</u>	<u>SUBJECT</u>
79-2	Fillet Weld Interruption at Stiffener Locations - Polar Crane Support Girders
79-6	Susceptibility to Weld Cracking of Socket Welded Valves - 2-inch and Smaller Valves
79-7	Incomplete Weld Penetration During Fabrication - Polar Crane Brackets
80-1	Potential Design Deficiency - Seismic Category 1 Instrument Support
80-2	Tubing Support Calculational Error - Seismic Category 1 Instrumentation
80-12	Non-Code Spool Installed in 3-inch Coded Line - CVCS System
80-25	Grout Voids Under Unit 2 Reactor Vessel Support Baseplates
80-27	Bearing Capsule Failures - Unit 1 Containment Polar Crane
80-32	Possible Excessive Piping Cold Spring and Nozzle Overstress - Unit 1 ECW Heat Exchanger No. 1
80-34	Faulty Foxboro Display Instrumentation - Unit 1 Main Control Panels
80-36	Possible Disengagement of Rod End Bushings on Piping Sway Struts
80-43	Unauthorized Removal of Defect in 3-inch Borg-Warner Valve - Unit 2
81-5	Apparent Immobility of Swivel Bearing - Horizontal Support Columns for Reactor Coolant Pumps
81-9	Radiograph Interpretation Disagreement - Weld W004, Line SI-B-135-14" - Unit 2
81-19	Potential Pen Drive Circuit Deficiency - Foxboro Model 226 Recorders - Unit 2

- 81-21 Potential Reenergization Problem - Power Supply Assemblies in ESFAS Auxiliary Relay Cabinets - Unit 1
- 81-23 Bent/Twisted Plug-in Contact Blades on GE Co. 480 Volt Motor Control Center Components - Units 1 and 2
- 81-24 Shallow Concrete Void in Localized Region of Top of Unit 1 Control Building Basemat
- 81-27 Partial Penetration Welds on Grano Company Embed Assembly - Unit 3
- 81-33 Potential Slippage of Bearing Sleeve Assembly and Shaft Seizure - Unit 1 Reactor Coolant Pumps
- 81-34 Undersize Fillet Weld on Pipe Support Base Plates - Underside of Unit 3 Containment Dome Liner Plate
- 81-36 Undersize Fillet Weld Specified on Standard Pipe Support Drawing - All Units
- 81-38 Possible Encroachment of Minimum Wall Requirements During Counterbore Machining of Pipe Spool Weld End Preparation - All Units
- 81-40 Vertical Dowel Trim Omitted from 5'x3' Wall Opening - Concrete Placement No. 3R004 - Unit 3 Radwaste Building
- 81-45 Missing Lockwires on Cover Cap Screws - Unit 1 Pressurizer
- 81-47 Voids in Grout Patch on Bottom of Elevation 100-foot Floor Slab - Unit 1 Main Steam Support Structure
- 81-54 Visible Linear Indication in Root of Steam Generator No. 2 Outlet Nozzle - Unit 1
- 82-6 Qualification Test Failure of Modulating Activators on Atmospheric Steam Dump Valves - All Units

The licensee's reports covering 10 items that were considered reportable under the 50.55(e) criteria were judged to be acceptable by the inspector and are closed. The corresponding DERs are as follows

<u>DER NO.</u>	<u>SUBJECT</u>
80-10	Faulty Limit Switches on Anchor/Darling Main Steam and Main Feedwater Isolation Valves - Units 1 and 2
80-13	Reinforcing Steel Dowels Omitted from Concrete Placement - Unit 3 Auxiliary Building Wall @ Elevation 70-feet
80-15	Inadequate Pump Protection - Containment Gas Analysis System - All Units
80-17	Design Deficiency for Pipe Break Loads - Unit 1 Main Steam Support Structure East Wall
80-22	Reinforcing Steel Dowels Omitted from Concrete Placement - Unit 2 Control Building Wall @ Elevation 180-feet
*80-38	Possible Pipe Weld Overstressing During Hanger Installation - 20" Lines CH-142 and CH-424 in Unit 2 Auxiliary Building
80-41	Inadequate Wiring Separation - ITE GOULD 480 Volt Loadcenter Isolation Relay Cabinets - All Units
*81-29	Failure of ASTM A490 Bolts to Develop Required Torque Value - Unit 2 Fuel Building Roof Truss
81-31	Incorrect Material Used for Limitorque Operator to Valve Shaft Pinion Keys - All Units
82-3	Potential Disintegration of Lube Oil Strainer Baskets - Emergency Diesel Engines - All Units

For many of the above items, the licensee had submitted interim reports because of the time required for evaluating the nature and extent of the problem, and for determining the most appropriate corrective action. For all items, the records indicate that the licensee's evaluations were thorough and that satisfactory corrective action has been completed or has been arranged.

*These DERs were actually examined by the inspector during the reporting period of February 1-26, 1982. They were inadvertently omitted from Inspection Report No. 50-528/82-07 which covered that period.

No items of noncompliance or deviations were identified.

6. Concrete Expansion Anchors - All Units

During a re-review of Specification No. 13-CM-307, Design, Installation and Testing of Concrete Anchors, the inspector discovered a conflict pertaining to quality class Q anchor installation. Section 6.4.4. is entitled Group D (Quality Class S) and subparagraph 6.4.4.a. allowed expansion anchors for electrical raceway of all quality classes (except tray supports) to be installed without the case-by-case approval of the licensee as required for all anchors except Group D. The licensee noted that blanket approval has been issued for certain static, shear only loading situations, but acknowledged that confusion could develop in the field due to the apparent conflict in the specification. They initiated action to clarify the discrepancy. This item will remain open. (50-528/82-08/01)

7. Inspection Tours of Plant Site

At various times during this inspection period, the inspector toured the plant site in order to observe general housekeeping conditions, care and preservation of equipment, handling of heavy components, tagging and identification of material, absence of welding electrode stubs lying around the various work areas, adequacy of caps over pipe openings not being worked on, and presence of cribbing under stored pipe spools, valves, and other components.

No items of noncompliance or deviations were identified.

8. Management Meeting

A meeting was held on April 2, 1982. Licensee and Bechtel representatives in attendance at the meeting are identified in Paragraph 1. During the meeting, the inspector summarized the scope of the inspection activities and reviewed the inspection findings as described in this report.