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	U. S. NUCLEAR REGULATORY COMMISSION OFFICE OF INSPECTION AND ENFORCEMENT	
	REGION V	
Report No.	50-529/79-05	
Docket No.	50-528, 50-529 License No. CPPR-141,142	Safeguards Group
Licensee:	Arizona Public Service Company	_
	P. 0. Box 21666	• •
	Phoenix, Arizona 85036	•
Facility Na	ame: Palo Verde Units 1 and 2	•
Inspection	at: Palo Verde Site, Maricopa County, Arizona	· · · · · · · · · · · · · · · · · · ·
Inspection	conducted: July 31 - August 3, 1979	· · · · · · · · · · · · · · · · · · ·
Inspectors:	Q.J. Kriock	9-18-79
F	L. E. Vorderbrueggen, Reactor Inspector	Date Signed
•	A.F. Buch	9-18-14
· ·	J. D. P. Hajst, Reactor Inspector	Date Signed
	f_{G} . Hernandez, Reactor Inspector.	Date Signed
Approved By	K J Nodes	9/19/79
,	R. T. Dodds, Chief, Reactor Engineering	/ Date Signed
Summary	Engineering Support Branch.	· ·
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	Inspection on July 31 - August 3, 1979 (Report Nos. 50-526	<u>5/79-05 and</u>
4 e	Areas Inspected: Routine, unannounced inspection of const	ruction fuel nool
	activities including: followup of open and unresolved ite	s. in Unit 1,
	containment and safety-related steel structures and suppor	ts for Unit 2
	The inspection involved 42 inspector-hours onsite by three	NRC inspectors.
	Decults: One item of noncompliance was identified concern	ning noncon-
•	formance of pipe hanger and support welds in design drawing the other thanks were identified in the other	ngs. No items
r.	inspected.	•••••
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DETAILS

1. <u>Persons Contacted</u>

a. <u>Arizona Public Service Company</u>

*E. E. Van Brunt, Jr., VicePresident/Project Director

*J. A. Roedel, Manager, Quality Assurance

*R. L. Hand, Site QA Supervisor

*L. W. Price, Site Construction Manager

*B. S. Kaplan, Quality Systems Supervisor

R. L. Robb, Manager, Nuclear Services

R. D. Forrester, Quality Assurance Engineer

N. E. Wibel, Quality Assurance Engineer

G. Pankonin, Quality Assurance Engineer

b. Bechtel Power Corporation

*D. W. Hawkinson, Project Quality Assurance Supervisor

*C. E. Gaither, Project Field Engineer

T. L. Horst, Lead Field Engineer - Civil

S. Boenzi, Lead Field Engineer - Civil

A. E. Moore, Lead QC Receiving Engineer

R. E. Guitierres, Mechanical Quality Control Engineer

R. Hedzik, Lead Discipline Field Engineer

T. E. Sonnemann, Discipline Field Engineer

T. F. Heiser, Mechanical Field Engineer

D. J. Jacks, Quality Control Field Inspector - Mechanical

H. Mear, Assistant Project Quality Control Engineer

M. Patterson, Pipe Support Group Leader

R. Condie, Quality Assurance Engineer

c. Combustion Engineering (CE).

S. N. Mager, Site Manager

Interviews were also held with two individuals regarding allegations of faulty construction work.

*Denotes attendance at the exit interview on August 3, 1979.

2. Construction Status

The licensee reported that as of July 31, 1979, the approximate completion status of Unit 1 was 44.5%, Unit 2 was 19.1%, and Unit 3 was 1.8%. The overall project was considered to be 23.4% complete.

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3. Licensee Action on Previous Inspection Findings

a. <u>(Closed) Open item: Material certifications for A449 Diesel</u> <u>Generator foundation bolts were not available for review.</u> (50-528/79-04/01)

A review of the material certification determined that the chemical, physical, and hardness analysis appeared to conform to the requirements of ASTM A449-68, Standard Specification for Quenched and Tempered Steel Bolts and Studs. This item is closed.

b. <u>(Open) Unresolved item: Undersize fillet weld on pipe support</u> <u>No. ISI-079-H-005 saddle to saddle base plate.</u> (50-529/79-04/02)

As a result of an NRC inspection on June 11-15, 1979, Bechtel performed an unscheduled audit of 49 installed and accepted hangers during the week of June 29, 1979. The audit disclosed that a generic problem exists regarding welds not meeting drawing requirements.

The inspector examined licensee and Bechtel correspondence and the following quality assurance documents resulting from this audit.

- (1) NCR-P-A-534 addresses pipe support No. ISI-079-H-005.
- (2) NCR-P-A-568 addresses installed pipe supports with unacceptable Bechtel welds.
- (3) NCR-P-A-567 addresses installed pipe supports with unacceptable Marathon Welds.
- (4) NCR-P-A-566 addresses installed pipe supports with unacceptable Pullman Welds.
- (5) CAR No. QAF UA-79-S-35A Bechtel Welds.
 - (6) CAR No. QAF UA-79-S-35B Supplier Welds.
 - (7) DER 79-10 Deficiency Evaluation Report addressing weld defects passed through the system and installed and 10 CFR 50.55(e) significance.

Corrective Action Requests (CAR) listed above had not been dispositioned. Bechtel stated that they were awaiting disposition of DER 79-10 by project engineering prior to dispositioning the CARs, and that the QC engineers responsible for inspecting pipe support welds have been made aware of the subject deficiencies and documentation to that effect was in their training files.



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In connection with this previously unresolved item the inspector examined additional pipe supports as described in Paragraph 8B.

c. <u>(Closed) Open item: Construction Inspection Planning (CIP)</u> records for pipe support <u>13SI-144-H-005</u> indicated both lug weld Nos. 1 and 2 received liquid penetrant (LP) testing; <u>LP test report did not indicate that a LP test was performed</u> on weld No. 2. <u>(50-528/79-04/03)</u>

NCR No. P-A-535 was issued to perform LP test on both weld Nos. 2 and 3. Examinations were acceptable and a new LP test report was prepared. Bechtel has increased surveillance of NDE contractor's field activities. This item is closed.

. <u>Unit 1 Steam Generators - Shim Movement</u>

Each steam generator is fitted with 4 slides which support and provide for movement of the sliding base. The licensee has recently discovered that a random shifting has taken place in the shim "stacks" located under each slide on both steam generators. Shifting has occurred in both the N-S and the E-W directions. In one location on steam generator No. 2, shim movement was sufficient to cause cracking of the 1/4-inch fillet weld which fastens the 2-inch x 6inch x 21-inch shim restraint bar to the embedded bearing plate. The inspector examined the shifted shims under steam generator No. 2 and observed the cracked weld and slightly bent restraint The movement is thought to be associated with the preheat and bar. welding of the generator/vessel hot legs. The exterior welding of the hot leg lines has been completed. The internal backing rings have been ground off in preparation for internal welding and surface cladding. The licensee is having the condition of the generators evaluated and is considering the 50.55(e) reportability aspects of the matter.

5. Fuel Pool Cooling Water Heat Exchangers

Subsequent to the discovery of the longitudinal weld defects in ASME SA-312 pipe manufactured by Youngstown Welding and Engineering Company, (Ref: IE Bulletin 79-03), the Struthers-Wells Company notified the licensee that nozzles on the fuel pool cooling water heat exchangers had been fabricated from Youngstown SA-312 material. Inasmuch as the two exchangers had already arrived on the job site, Bechtel issued Stop Work Notice 79-SW-3 on June 22, 1979 and had the testing laboratory perform a radiographic examination of the suspect nozzles. Radiography Reports 4899, 4900, 4901 and 4902 documented the examination and were reviewed by the inspector. The weld seams were found to contain no discernible defects.

6. <u>Safety-Related Pipe Supports and Restraints</u>

a. Review of Quality Assurance Implementing Procedures

The following pipe support and restraint documents were reviewed for conformance to licensee and code requirements:

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- (1) Specification 13-PM-209, "Specifications for Nuclear Pipe Supports."
- (2) WPP/QCI-201.1, "Nuclear Pipe Hangers and Supports Installation."
- (3) Specification 13-PM-201, "Specification for Shop Fabrication of Nuclear Service Piping."

No items of noncompliance or deviations were identified.

The inspector noted that QCE verification and documentation of mechanical snubber cycling is not a requirement of WPP/QCI 201.1. The pipe support area field engineer (PSAFE) performs this functional check and then records the serial number of the acceptable snubber on the CIP. The licensee agreed to review the need for QCE verification and documentation of snubber cycling.

b. Observation of Work and Work Activities

(1) The following safety-related mechanical snubbers, not yet installed, were selected for examination:

· <u>System</u>	Restraint Number	Load Classification	
Chemical and Volume Control	13-CH-028-h-00M	700#	
Main Steam	13-SG-045-H-012	45640# ·	
Spray Pond	13-SP-079-H-001 13-SP-025-H-001	3824# · . 3824#	

All snubbers were checked for smooth shaft travel and for unit activation by sudden movement. All snubbers conformed to drawings and had the correct hot and cold settings indicated on attached stainless steel tags.

Support Number

No items of noncompliance or devations were identified.

(2) The following safety-related fixed pipe supports were selected for examination:

System

10-H-023 01-H-006 69-H-008
26-H-034 26-H-009 23-H-023

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Chemical and Volume Control 1CH-027-H-00Y 1CH-027-H-00A Reactor Coolant 1RC-068-H-005

Safety	Injection	151-12		·H-003
-		=	(Spring	Hanger)

The supports were all of fixed design, quality Class Q, seismic category 1 and ASME Class 1, 2 or 3. The supports were examined to ascertain conformance to the applicable drawings and specifications. All of the supports had received QC acceptance inspection on or after June 15, 1979. The inspector identified the following deficiencies:

inch fillet 2-6.

Support Number	Defi	Deficiency		
1EW-023-H-033	(1)	Field weld attaching item A to existing vertical column is specified as 3/8-inch fillet 2-4; actual condition is 3/8-		

(2)Field welds attaching top and bottom of brace (item D) to item B and existing column, respectively is specified as 3/8-inch fillet, one side, both legs; actual condition is 3/8inch fillet, both sides, one leg.

Shop weld attaching item B to item A is specified as 3/16-inch fillet 4-12; actual condition is 3/16-inch fillet 2-7.

· Dummy pipe shop weld to saddle base is specified as 1/4-inch fillet; existing weld is 3/16inch fillet.

The inspector examined the Construction Inspection Planning (CIP) reports for the three supports and found welding QCE signoff on May 22, June 22, and June 28, 1979, respectively. WPP/QCI 201.1 was revised on July 20, 1979 to require QCE verification of vendor welds on pipe hangers and supports.

The failure to weld pipe hangers and supports in accordance with the applicable drawings is considered to be an item of noncompliance.



1SI-129-H-003



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c. Review of Quality Assurance Records

The Construction Inspection Plans (CIP) for the three deficient pipe supports listed in Paragraph b were reviewed for conformance with procedural requirements. All records appeared satisfactory with the exception of the deficiencies identified in Paragraph 8b.

7. Containment - Steel Structures and Supports

a. Observation of Work and Work Activities

The inspector examined work activities associated with Unit 1 pressurizer supports for compliance with WPPQCI 375.0, Revision 1.0, Pressurizer Storage, Handling, and Installation, and Bechtel Civil Drawing No. 13-C-ZCS-604, Revision 4.0. The examination included verifying that the support was of the type specified, installed in the proper location, critical dimensions were adhered to, anchor bolts and nuts were of the type and grade specified, instruments were properly calibrated, and bolts properly tensioned to procedural requirements. The inspector further determined that the cognizant quality control personnel performed inspections and verification reviews of all final alignments and orientations of the pressurizer vessel. All inspection results appeared to be adequately documented on applicable Construction Inspection Plans (CIP).

b. Review of Quality Records

The quality records associated with the pressurizer support were reviewed for compliance with applicable procedures and specifications. This included a review of material certififications, anchor bolt installation, grouting, tensioning, receipt inspection, nondestructive examination and nonconformance reports.

No items of noncompliance or deviations were identified.

- 8. Safety-Related Structures (Structural Steel and Supports)
 - a. Observation of Work and Work Activities

The inspector examined structural steel supports for two Low Pressure Safety Injection Pumps, Nos. 2M-51A-PO1 and 2M-S1B-PO1, and two Containment Spray Pumps, Nos. 2M-S1A-PO3 and 2M-S1B-PO3, located at the 40-foot elevation of the Auxiliary Building of Unit 2. The structures were examined for compliance to the requirements of Specification 13-CM-320, Revision 5.0 and WPP/QCI 58.0, Revision 6.0 Erection of Structural and Miscellaneous Steel, and Bechtel Civil Drawing No. 13-C-ZCS-242, Revision 4.0. The structural steel supports were observed



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structural steel support of the pumps.

Bechtel specification 13-CU-320 identifies the requirements for bolting of structural steel supports for the Containment Spray and LPSI pumps. It was observed by the inspector that one A325 bolt and nut for Containment Spray Pump No. 2M-S1B-P03 on the west side of the support was loose. The construction work in this area was considered complete and a review of the CIP indicated that quality control had verified and accepted the work. The licensee took immediate action to have the bolt retorqued, and documented this condition on nonconformance report No. C-A-1483.

b. Review of Quality Records

The quality records associated with the structures identified in Paragraph 10a above were reviewed. This review included: material certifications, grouting, compressive strength for grout specimens, inspection reports, calibration, receipt inspection, nondestructive examination, and nonconformance reports. While no items of noncompliance were identified, the following items were brought to the attention of the licensee:

- (1) The Construction Inspection Plan (CIP) for LPSI Pump No. 2M-SIB-POI was not available for review. Bechtel representatives stated that the CIP could not be located, although the support had been inspected and accepted. NCR No. C-A-1484 was issued to document this situation and a program started to reinspect the structure and establish a replacement CIP.
- (2) For Containment Spray Pump No. 2M-SIB-PO3 the CIP indicated that two items that should have been verified and accepted by the quality control inspector were marked "not applicable" in both instances. Licensee representatives stated that discussions with the cognizant engineer indicated that the "N/A" marks were an oversight on the part of the inspector and items had been verified and accepted at the time the inspection was performed. The licensee then asked the inspector to correct, sign and date the CIP.

9. Exit Interview

At the conclusion of the inspection a meeting was held with the licensee and contractor representatives denoted in Paragraph 1. The scope and findings of the inspection, including the items noted in Paragraphs 8b and 10a were discussed. The licensee stated that prompt consideration would be given and appropriate action taken on the items called to their attention.

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