U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-508/83-02

Docket No. 50-508 License No. CPPR-154 Safeguards Group

Licensee: Washington Public Power Supply System

P. O. Box 1223

Elma, Washington 98541

Facility Name: Washington Nuclear Project No. 3 (WNP-3)

Inspection at: WNP-3 Site (SAT50P)

Inspection conducted: January 17-21, 1983

Inspectors: D. P. Haist, Reactor Inspector — 2/3/83 Date Signed

W. J. Wagner, Reactor Inspector — 2/3/83 Date Signed

Approved by: R. F. Dodds, Chief, Reactor Projects Section No.1 — 2/3/83 Date Signed

Summary:

Inspection during the period of January 17-21, 1983 (Report No. 50-508/83-02)

Areas Inspected: Routine, announced inspection by regional-based inspectors of construction activities including: safety-related pipe installation and welding; reactor vessel internals installation; licensee action on previous enforcement and follow-up items; containment penetration records; and licensee action on IE Bulletins and Circulars.

The inspection involved 70 inspection-hours onsite by two NRC inspectors and 12 inspection-hours in-office by one NRC inspector.

Results: One item of noncompliance was identified (failure to observe a hold point during valve installation - Paragraph 6).

DETAILS

1. Persons Contacted

The inspectors interviewed various engineering, management, inspection, and construction personnel of the organizations listed below. Key personnel, including those who attended the exit interview, are identified below.

a. Washington Public Power Supply System (WPPSS)

*N. C. Kaufman, Completion Manager
*D. C. Trapp, Project Quality Assurance Manager
*J. A. Vanni, Quality Assurance Engineer
*K. A. Kirkwood, Project Engineer
*J. A. Pucauskas, Quality Assurance Supervisor
*D. R. Coody, Quality Assurance Engineer
 E. Blais, Quality Assurance Engineer
*C. Dutrow, Project Engineering
*D. W. Coleman, Manager of Safety Assurance

b. Ebasco Services, Inc. (Ebasco)

*B. Shetty, ESSE Project Engineer (Acting)
*J. P. Sluka, Manager of Engineering
*F. E. Cottrell, Senior Resident Engineer
*C. M. Kim, Principal Engineer
*G. McConnell, Quality Assurance Engineer
*R. Abel, Quality Assurance Engineer
*J. D. May, Quality Assurance Engineer
 C. M. McClaskey, Senior Lead Quality Control Engineer
*K. J. Gladrosich, Quality Assurance Engineer
 D. E. Patterson, Lead Quality Assurance Engineer, Records

c. Combustion Engineering (CE)

R. E. Claar, Quality Assurance Representative, CE Avery
L. Lehman, Quality Assurance Representative
A. Friend, Engineer

d. Peter Kiewit Sons, Inc. (PKS)

G. W. New, Assistant Material Manager
F. Wisner, Quality Assurance Manager
S. Scott, Quality Control Manager
R. G. Jensen, Quality Engineer Supervisor
P. A. Smith, Piping Superintendent
E. S. Tosh, Quality Assurance Administration Manager

*Denotes attendance at exit interview on January 21, 1982.

2. <u>Site Tour</u>

The inspectors conducted a tour of Unit 3 on January 17, 1983, to observe completed work, work in progress, and storage and maintenance of safety-related equipment.

No items of noncompliance or deviations were identified.

3. <u>Licensee Action on Previous Enforcement Items</u>

<u>(Closed) Noncompliance (50-528/529/81-18/02) - Failure to Specify Proper Weld Sizes for ASME XF Pipe Supports</u>

The inspector had previously identified a failure to properly specify minimum fillet weld sizes for supports in accordance with the ASME B&PV Code, Section III, Appendix XVII, paragraph 2252.1.

The inspector questioned the lack of any nondestructive examination when undersized fillet welds are identified on completed work. The licensee had directed Ebasco to perform magnetic particle testing of undersized welds on completed work prior to the corrective addition of weld metal, but the inspector could not find any evidence of direction to the contractors to perform this inspection. The licensee produced Nonconformance Report No. 14036 which required magnetic particle inspection of undersized welds and inspection of the welds for the cracks. This nonconformance report was voided and superceded by Nonconformance Report No. 14234 which deletes the requirement for magnetic particle inspection. The licensee justified this deletion by stating that the climate at the site is mild so that excessively rapid cooling of undersized welds would not occur. Ebasco additionally stated on the nonconformance report that the additional multiple passes would benefit the weld by promoting tempering of hardened zones, grain refinement, and release of trapped hydrogen.

The inspector discussed the results of visual inspection of undersized fillet welds with the installing contractor. The contractor stated that no evidence of cracking was identified on any of the undersized welds. Based on these inspection results, the licensee's justification for not performing magnetic particle examination, and the absence of any requirement for magnetic particle examination in the applicable code this item is considered closed.

4. Licensee Action in Previous Followup Items

(Closed) Followup Item (50-508/505/81-08/15) - Specification of Pipe Bending Temperatures

The inspector had previously expressed concern that the temperature limits allowed for bending carbon steel and/or stainless steel could cause degradation of the mechanical and corrosion properties of the steel. Subsequently, Gibbs Specification No. WPPS-3240-472 was revised to incorporate minimum and maximum bending temperature limits and other technical requirements, such as minimum bending radius, to ensure pipe integrity during bending. The licensee has issued direction to the contractor requiring that Procedure Number PES-WI-305, Revision 6, be revised to identify these temperature limits. Although bending radius requirements were not mentioned in the letter, the licensee informed the inspector that they would be incorporated in the revised PES procedure. This item is considered closed.

5. Welding of Safety-Related Piping - Contract 251

a. Observation of Welding Activities

The inspector observed in-process pipe-to-pipe welding in the component cooling system, and pipe-to-valve welding in the containment spray system. Attributes examined included fit-up, cleanliness, weld identification, proper use of a "traveler," gas purging procedure, weld joint geometry, and correct issue and use of welding electrodes.

No items of noncompliance or deviations were identified.

b. Weld Filler Material Control

The contractor's procedures for purchasing, receiving, storing, and identification of welding material were examined by the inspector. Procurement is in accordance with Procedure Number PES-EP-8, Revision 7. The following filler materials and heat numbers were obtained, by the inspector, from information entered on the weld filler material withdrawal slip and from the rod room issue station:

Filler Material	Heat No.	Size
E-7018	21602	1/8"
E-705-3	601059	1/8", 3/32"
ER-308L	25247	1/8", 3/32"
ER-309	25360	3/32"
ER-310	4660720	1/8", 3/32"
ER-316L	464373	3/32"
308L	E4504-308L	6" Sch 40 Consumable Insert

Tracing these filler materials from the weld joint back to the purchase order revealed that all materials were purchased, received, and stored in accordance with applicable code and procedural requirements. Material certifications of each heat of electrode were on file and reviewed by the inspector. Heat numbers of electrodes used are transferred to the Weld Data Sheet thus becoming a permanent record for installation of the piping system.

No items of noncompliance or deviations were identified.

4. Special Welding Applications

The inspector reviewed the records of several weld repair activities involving different types of weld repairs. This included weld repairs due to material discrepancies (base metal defects), welding discrepancies (weld size and defects) or installation discrepancies (damage). The following weld rework records were reviewed to determine whether the weld repairs are conducted in accordance with applicable codes and specified procedures:

Weld Rework Record No.	Item/System Identification	Discrepancy
5132	Spool No. 2CH3-609.14	Weld Defect (Porosity)
5235	Spool No. 2SI10-218.2	Excessive Root Reinforcement
5338	Spool No. 2SI12-007.2	Base Metal Surface Defect
5340	Hanger No. 3G-CH-151	Undersize Weld
5400	Spool No. 2CH4-178.1	Improper Fit-up
5259	Hanger No. 3G-CC-32.8	Untraceable Lugs
5508	Hanger No. 3G-CS-138	Untraceable Lugs
5572	Spool No. 2CS10.096.4	Slag
5637	Spool No. 2CH2G-150.7	Porosity
5648	Spool No. 3FS12-008	Porosity
5720	Spool No. 2SI14-263.1	Incomplete Fusion

The records indicated that the repairs were properly documented and performed using qualified welding and nondestructive examination procedures, qualified welders, and signed-off by project quality assurance and the Authorized Nuclear Inspector.

No items of noncompliance or deviations were identified.

6. Installation of Safety-Related Piping - Contract 251

a. Observation of Work Activities

The inspector observed a valve-to-pipe spool fit-up installation. The valve, 5I-VU021SBR, is the cross-over point between the safety injection system (5I) and the containment spray system (CS). The fit-up was on FW-1 (ISO No. 5I-A12-23) and FW-3 (ISO No. CS-A12-32). The work was performed in accordance with approved PES procedure Number CP-3, "Pipe Fabrication and Installation Procedure," and the applicable work release drawing. Inspections were performed by qualified quality control personnel.

The inspector also observed fit-up of Check Valve Number 2CH-VW402SBR to Line Number 2CS2O-0865B. The weld prep on the valve and pipe were completed and the purge dam in place. The valve was being lifted into position for proper alignment with the pipe prior to tack welding into permanent position. Installation and inspection was in accordance with applicable procedures and drawings.

No items of noncompliance or deviations were identified.

b. Review of Quality Records

The inspector reviewed the records associated with the purchasing, receiving, and installation of the following components for compliance with PSAR documentation commitments:

Component Description

Pipe Spool - No. 3CH3-3555NR-4

Valve - No. 3AF-VD018SB

HPSI Pump - No. 2 (S/N 07768)

Valve - No. 2CS-VSO80SBR-2

The type of records reviewed were material test reports, certificates of compliance, vendor manufacturing inspection and certification of equipment, receiving inspection reports, and records of disposition of nonconforming material. Site Nonconformance Report No. 10646 was written against HPSI pump No. 2; disposition was in accordance with approved procedures.

The inspector also reviewed the site installation records for these components. This involved review of the following documents:

- Work Release Forms
- Work Release Drawings
- Weld Data Sheets
- Field Personnel Weld Activity Check Stamp
- Hold Points Form
- Inspection/Examination Data Report (IEDR)
- NDE Reports
- QC Personnel Qualifications

When reviewing Work Release Drawing No. 3AF-A12-41 the inspector noted that there was no evidence that mandatory hold point number 2 was observed. This hold point, which is also specified on the IEDR, stated "Verify valve seat in open position prior to fit-up." The contractor informed the inspector that this requirement is necessary to prevent the hardened valve seat from cracking during the welding operation. With the valve seat closed the valve body-to-seat relationship could deform resulting in valve leakage. The contractor issued NCR No. 251-5803 to evaluate and disposition this item.

The failure to accomplish activities affecting quality in accordance with prescribed instructions, procedures, or drawings is considered an apparent item of noncompliance with 10 CFR 50, Appendix B, Criteria V, Instructions, Procedures and Drawings (50-508/83-02/01).

7. Containment Penetrations - Review of Quality Assurance Records

The inspector examined Ebasco and Peter Kiewit Sons' receiving inspection records for Containment Penetration Nos. 23 and 24 for conformance with Specification 3240-54 and quality assurance program requirements. The records were readily retrievable and correctly completed.

No items of noncompliance or deviations were identified.

8. Licensee Action on IE Bulletins and Circulars

Receipt and actions by the licensee relative to the following circulars were examined. It was verified that corrective actions have been taken or are scheduled to be taken as indicated.

a. (Closed) Circular 80-22, Confirmation of Qualification of Employees

All major contractors were provided a copy of the circular and were informed of deficiencies identified in one contractor's program. They were requested to evaluate and correct their programs accordingly. The issues pertained to the contractor's program were resolved in March 1982.

b. (Closed) Circular 81-05, Self Aligning Rod End Bushings for Pipe Supports

A requirement has been issued and documented in the tracking system for startup to verify the acceptability of staked bushings and assure new spacer washers have been installed on all ITT Grinnel size-1 mechanical snubber assemblies.

c. (Closed) Circular 81-06, Foxboro E-10 Series Transmitters

Foxboro E-10 series transmitters will not be used. Nevertheless, a warning has been placed in the General Tracking System ledger to assure that they will not be added to systems.

d. (Closed) Circular 81-08, Insufficient Backfill Materials During Construction

Apparent discrepancies were identified between design requirements for backfill of Class-1 items and construction practices. These concerns were addressed and resolved by including backfill requirements in Specification No. 3240-466. The analysis of design is subject to scrutiny. The latest design review in this area was the week of December 6, 1982. Corrective action on backfill around the dry cooling tower for the component cooling water lines was dictated in letter EBWP-82-283. Density tests will be performed when appropriate.

e. (Closed) Circular 81-13, Torque Switch Electrical Bypass Circuit for Safeguard Service Valve Motors

Requirements have been added to the General Tracking System ledger to assure that (1) administrative controls will be established to assure torque switch bypass circuits of Limitorque operators are not inadvertenly removed and are restored if removed for maintenance and (2) inspections will be performed to verify that torque switch bypass circuits have been installed on Limitorque operators. Letter EBWP-82-131 provided a listing of applicable safety-related valves and stated that inspections will be performed after installation of the circuit. The listing was slated for usage by operating maintenance.

f. (Closed) Bulletin 82-04, - Deficiencies in Primary Containment Electrical Penetration Assemblies

The licensee has stated that no Bunker Ramo electrical penetration assemblies are installed or plan to be installed in safety-related systems at WNP-3/5. This bulletin is therefore inapplicable.

9. Reactor Vessel Internals - Combustion Engineering

a. Review of Quality Assurance Implementing Procedures

The inspector reviewed the site process sheets for flow baffle installation for conformance with the Reactor Vessel Internals Instruction Manual and the contractor's quality assurance programs.

No items of noncompliance or deviations were identified.

b. Observation of Work and Work Activities

The inspector observed cleaning and preparation for handling of the reactor vessel flow baffle and handling and storage of the upper guide structure and control element assembly shroud.

No items of noncompliance or deviations were identified.

10. Main Steam Restraint Assembly Modifications

The inspector examined project change proposals and supporting calculations which modify the mounting details of the main steam restraint assembly attachment to the D-ring structures. The anchor bolt mounting design is being replaced with a fillet weld mounting design. The calculations were found to adequately support the proposed design change. The inspector noted that the proposed fillet weld joint does not meet the requirements of an AWS D1-1 prequalified weld joint. The Engineer also recognized that the proposed weld joint was not prequalified but stated, in Project Change Proposal No. 35Q-14386, that the contractor need not qualify the weld joint procedure because the code required macroscopic examination will not produce any relevant information. AWS D1.1, paragraph 2.6.2, to which the licensee is committed, specifies that joints may depart from the details of prequalified joints only if the contractor submits to the Engineer his proposed joints and joint welding procedures and at his own expense demonstrates their adequacy in accordance with the requirements of Section 5.2 of AWS D1.1. Section 5.2 states that, except for prequalified joints, "welding procedures which are to be employed in executing contract work under this code shall be qualified prior to use, to the satisfaction of the Engineer, by tests as prescribed in Part B of this section."

Licensee representatives stated that they have considered deviations from the AWS structural welding codes acceptable as long as the deviations received the proper engineering review. The inspector questioned this position and stated that a commitment to the NRC to follow a code or standard will be viewed as a commitment to literal compliance unless the code provides for deviations and the NRC recognizes the deviation provisions. The issue of literal compliance to code commitments is considered unresolved. 50-508/83-02/02

11. Management Meeting

The inspectors met with the licensee management personnel denoted in paragraph 1 at the conclusion of the inspection on January 21, 1983. The inspectors discussed the scope and findings of the inspection. The findings were acknowledged by the licensee.