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

REGION V

Report No. 50-460/80-01
50-513/80-01

Docket No. 50-460, 50-513 License No. CPPR-134, CPPR-174 Safeguards Group

Licensee: Washington Public Power Supply System

P. O. Box 968

Richland, Washington 99352

Facility Name: Washington Nuclear Projects Nos. 1 and 4 (WNP 1 & 4)

Inspection at: WNP 1 & 4 Site, Benton County, Washington

Inspection conducted: January 1-31, 1980

Inspectors: R. C. Haynes for A. D. Toth, Resident Reactor Inspector — 4/2/80 Date Signed

Date Signed

Date Signed

Approved By: R. C. Haynes — 4/2/80 Date Signed
R. C. Haynes, Project Section Chief
Reactor Construction and Engineering Support Branch

Summary: Unit 1 Inspection January 1-31, 1980 (Report No. 50-460/80-01)

Areas Inspected: Routine, unannounced inspection by the resident inspector of construction activities relating to: general construction activities, licensee action on items reported to NRC under 10CFR50.55(e), safety related steel structures, safety related piping welding, structural steel, mechanical component storage, electrical component storage, safety related component protection after installation, heating and ventilation system welding, reactor pressure vessel in-place protection and reactor vessel internals storage. The inspection involved 59 inspector-hours on-site by the NRC resident inspector.

Results: Of the eleven areas inspected, two items of noncompliance were identified in the area of piping erection (failure to control temporary attachments to structural steel - para. 4) and (undersize welds on pipe supports-para 5)

Unit 4 Inspection January 1-31, 1980 (Report No. 50-513/80-01)

Areas Inspected: Routine, unannounced inspection by the resident inspector of construction activities relating to: general construction activities, licensee action on items reported to NRC under 10CFR 50.55(e), mechanical component storage, electrical component storage, containment reinforced concrete, reactor pressure vessel storage. The inspection involved 9 inspector-hours on-site by the NRC resident inspector.

Results: No items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

Washington Public Power Supply System (WPPSS)

*A. D. Kohler, Project Manager
*M. C. Carrigan, Construction Manager
*T. J. Houchins, Project QA Manager
*G. K. Dyekman, Project Engineering Manager

United Engineers and Constructors

*E. C. Haren, Deputy Project QA Manager
*G. E. McIntosh, Assistant Deputy Project Manager
*R. H. Bryans, Field Project Engineering Manager

J. A. Jones Construction Company (JAJ)

W. Roe, Manager
R. Pope, Engineering Manager
D. Higginbotham, Senior QC Inspector

Foley, Wismer and Becker Company (FWB)

C. W. Needham, Project Quality Director
J. Collins, QC Manager
L. Lint, Quality Inspection Supervisor

Schurtleff and Andrews (S/A)

R. Byrd, Superintendent
K. Engstrom, QA Manager

The inspection also included discussions with other craft, management and quality inspection personnel.

*Principal licensee and architect-engineer/constructor representatives to whom inspection findings were presented during management meetings on January 14, 21, 28 and February 4, 1980.

2. General Construction Activities - Unit 1 and Unit 4

The inspector was on-site January 2-4, 14-18, 21-23, and 28-31, and made plant inspections at various times during this period. Several craft personnel, supervisors, and quality control inspectors were interviewed by the inspector at the various work areas. Additionally, the inspector examined in-process records such as work control forms, inspector logs, calibration tags, quality release tags, and equipment identification tags. The inspections included observations to ascertain compliance with general and specific codes and standards, regulatory guides and requirements, and implementation of quality assurance program requirements.

3. Licensee Action on Item Reported to NRC under 10CFR50.55(e)

The inspector audited work activities for correction of conditions reported to NRC in the licensee's letter date lovember 30, 1979. This involved inspection of several cable tray support assemblies installed in Unit 1 general services building. Observations, examination of records and interviews of personnel were conducted relative to: identification of electrical cable tray supports which have been tested to affirm integrity of spot welds, presence of reinforcing fillet welds on piece marked A-1262, demonstration and documentation of ultrasonic tests of spot welds on piece marked A-1262, quality control documentation of production field tests on installed assemblies, and tracking method used to assure completion of all required ultrasonic tests and repairs.

With the development of an ultrasonic test to confirm bonding of the spot welds, the licensee adopted a program in which those welds shown by ultrasonic tests to be defective will be repaired by addition of fillet welds. An ultrasonic testing contractor was hired to perform the testing. Calibration standards and qualification testing of the process was performed by the contractor on specimens fabricated by the manufacturer of the supports. A study was conducted to ascertain the minimum acceptable size of the zone of fusion and this was used as acceptance criteria for the ultrasonic testing. The licensee stated that these tests and repairs will be described in a final report to the NRC.

This item will remain open pending satisfactory review of the final report by the NRC.

4. Safety Related Steel Structures - Unit 1

During plant tour activities the inspector observed that several temporary attachments to structural steel of the general services building were made by welding and that paint was not cleaned from the weld area prior to welding. The inspector interviewed the responsible structural steel contractor personnel who stated that such attachments were not allowed under their contract unless strict controls were exercised over joint preparation and removal of the attachment and inspection of the base metal. They stated that the subject temporary attachments were not installed by them.

The inspector ascertained that the attachments were being made by the piping contractor, the J. A. Jones Construction Company (JAJ), under contract Nos. 257 and 211. Although there were requirements in the contracts for welding and removal of temporary attachments to structures, the JAJ procedures do not include these controls. Specifically, there were no instructions to implement the contract 257 requirements to visually inspect areas where temporary welds were removed, to locate welds preferentially along edges of beams and to preheat the welds. The QC inspectors interviewed identified no requirement for them to inspect such installations, neither specifically nor in general surveillance.

The applicable code AWS Structural Welding Code D.1.1-1974, Part 8.14 requires that temporary welds shall be subject to the same welding procedure requirements as final welds. Part 3.2 (Preparation of Base Metal) requires cleaning of weld joints prior to welding. Failure to provide documented instructions, procedures or drawings to control temporary welds appears to be a noncompliance with Criterion V of 10CFR50 Appendix B. (460-80-01-01).

5. Safety Related Piping Unit 1

The inspector audited five typical activities for installation of piping for the makeup and purification system. This involved inspection of hanger and support material storage at the general services building elevations 399 and 421, fabrication of hanger No. MUS-103-SG-2, core drilling for pipe hanger anchor bolts, and support of piping tied into the letdown heat exchangers (inside the containment building). Applicable codes, standards, and other quality requirements are described in the PSAR Section 17, contract specification 257, contractor procedure PGCP-0, and drawing H-417285, sheet 8.

Observations, examination of records and interviews of personnel were conducted relative to protection of stored materials from damage, craftsmen familiarity with anchor bolt drilling and installation provisions for cold spring in piping, and conformance of the hanger fabrication in-process to applicable drawings.

The hanger, MUS-103-SG-2, field welds met the requirements of the applicable drawing (H-417285 sheet 8), but the shop installed fillet weld size of 5/16-inch, measured with a standard fillet gage, did not meet the 3/8-inch size shown on the drawing. The licensee quality assurance surveillance staff confirmed the measurements, issued nonconformance report 1-NCR-123-039 to assure evaluation/repair, and performed a survey of ten other hangers (no deficiencies were noted). The licensee survey included an appropriate selection of different pipe systems. It is documented on surveillance report No. 257-599.

The inspector also examined additional hangers/supports in the general services building:

Shop welds on the following hangers were found to meet the minimum size shown on the applicable design drawings:

NSW-100-SG-1, NSW-053-SG-1, NSW-16-SG-1A, DHR-46-RG-4, DHR-8-SG-9, DHR-28-RG-101A, DHR-22-RG-4, MUX-118-SG-101A, CCW-54-SG-106, DFR-14-SG-1, CSS-51-SG-5

One shop weld on each of the following three hangers were undersize relative to the applicable design drawing:

DHR-35-SG-4: one 5/16-inch specified fillet weld was 3/16-inch.

DHR-36-SG-3: one 5/16-inch specified fillet weld was 1/4-inch.

CCW-206-SH-1: one 1/4-inch specified fillet weld had excessive weld contour and lack of penetration such as to result in a weld throat of 1/8-inch.

The above failure of these welds to meet the sizes specified in the applicable drawings appears to be a noncompliance with Criterion V of 10CFR50 Appendix B. (460/80-01-02).

6. Safety Related Piping Welding Unit #1

The inspector audited work activities for welding in progress on three welds in safety related piping. This involved inspection of auxiliary feedwater system stainless steel weld Nos. F411975-FW4 and F411975-FW3 and radioactive equipment drain system stainless steel weld No. F412077-FW6. Applicable codes, standards, and other special requirements are described in SAR Sections 17 and 3.12 (Regulatory Guide 1.33 and 1.44), contract specification 257, and contractor procedures (JAJ) WP-P8-1, NDE-007 and NDE-008. The following aspects of the work were inspected: identification of welder, documentation of weld material used, drawing and process control sheet availability, use of purge gas, documentation of quality control inspector signoff of hold points where required, control of interpass temperature and availability of calibrated temperature measuring device, availability of oxygen analyzer for purge gas verification, and control of heat input parameters such as weld weave limitations.

The inspector observed that a hold tag, dated August 27, 1979, was affixed to the reactor coolant drain tank. The weld to tank nozzle No. F was performed on December 12, 1979. Although a conditional release in the drain tank file showed appropriate evaluation and release on October 24, 1979, it was not clear that the hold tag had been released at the time of welding. Interview of personnel indicated that violation of hold tags has occurred several times in past months. The inspector accordingly reviewed the following nonconformance documentation for contracts Nos. 211 and 257 to assess trends in this area and licensee corrective actions.

a) UE&C nonconformance reports (NCR) dated July 28, 1978 to December 24, 1979

b) UE&C Corrective Action Reports (CAR) dated August 9, 1979 to January 7, 1980 (Nos. 1 to 7), also, CAR #1 for contract #211

c) JAJ contractor nonconformance reports (CNCR) dated August 30, 1979 to January 28, 1980 (Nos. 326 to 578)

The above documentation showed that hold point violations by the crafts were identified by the JAJ quality control inspectors and corrective actions were taken relative to each item. Eleven such incidents occurred in October and six occurred in January. (Some related to other than safety related systems or structures). The CNCR's Nos. 475, 519 and 525 document JAJ efforts to train the crafts and foremen regarding hold points, and CAR 21 documents similar action in response to requests from the licensee and UE&C. Additionally, the inspector examined an indoctrination sheet which is given to each craftsman and which is signed by him, which includes several brief instructions, including information regarding hold points and conditional releases. Discussions with the JAJ senior QA representative and Unit 1 construction manager indicated that additional work crew staffing changes and training practices are planned to be implemented in February 1980.

The inspector concluded that the contractor and licensee were cognizant of this matter and were taking appropriate actions in accordance with the quality assurance program. No items of noncompliance or deviations were identified.

7. Structural Steel - Unit 1

The inspector audited work activities for structural steel installation. This included inspection of storage of shop fabricated shapes, examination of four typical shapes relative to design details, observation of welding at the site rework tables, and observation of field welds of steel inside the containment building. Applicable codes, standards, and quality requirements are described in PSAR Section 17 and 3.8.4.6 (AWS D1.1) and contract specification 207.

Observations, examination of records, and interviews of personnel were conducted relative to: adequate dunnage for storage, piling or other contact type damage, size of shop welds (piece Nos. 13-3291A-1, 4273A and 4343A), qualification of field welders (three welders were checked: DT/DF/FG), and use of proper weld material for field welding.

The inspector observed some local slag under the paint on the fillet weld of beam 4273A. The contractor site superintendent advised that this matter had been raised by the licensee auditors and actions taken relative to it. The inspector requested records of the audits, findings, evaluations and corrective actions. These will be examined during the next report period. This item is considered to be unresolved pending the inspector's review of the requested records. (460/80-01-03)

8. Mechanical and Electrical Safety Related Components - Units 1 & 4

The inspector audited work activities for storage of equipment for Unit 1 and Unit 4 at the off-site warehouse facilities in Pasco, Washington. Applicable quality requirements are described in PSAR Section 17 and 3.12 (Regulatory Guide 1.39).

Observations, examination of records, and interviews of personnel were conducted relative to: temperature and humidity control, covers, desiccant control, part identification, segregation of nonconforming items, preventive maintenance, and quality control inspection activities.

No items of noncompliance or deviations were identified.

9. Safety Related Component Protection After Installation - Unit 1

The inspector examined the storage conditions of stored-in-place makeup and purification on pumps 1A/2B/3C and the auxiliary feedwater pumps and related motors. Observations were made several times during plant tours of the general services building. Applicable codes, standards and quality requirements are described in PSAR Sections 17 and 3.12 (Regulatory Guide 1.39), contract specification 257, and contractor procedures FGCP-16 and FQS-13.4. The following aspects were considered: presence of protective covers on nozzles, covers for dust and rodent control on motor vents, protection from damage from general area construction activities, evidence of activitation of motor heaters, and lubrication sight gage indication where applicable.

No items of noncompliance or deviations were identified.

10. Containment Structural Concrete Unit 4

The inspector audited work activities for installation of reinforcing steel in the containment wall and in a floor slab inside the containment building. This included inspection of cadwelds of No. 18 to No. 11 reinforcing steel bars on the exterior course of reinforcing steel of the containment wall, and cadwelds and reinforcing steel patterns in the floor slab designated as concrete pour No. C1016. The inspector viewed the preparations and firing of cadwelds in each area, and specifically interviewed the responsible QC inspector who was monitoring floor slab cadweld No. C1016-12.

Applicable codes, standards and quality requirements are described in PSAR Sections 17 and 3.8, and contract specifications 253 and 254.

Observations, examination of records, and interviews of personnel were conducted relative to: preheat, fit-up dimensions, gap at bar-ends, handling of crucible equipment, presence of QC inspection, accuracy of records, identification of splice and materials, sister and production splice selection and related crew qualification monitoring and control, appearance of completed splices in the vicinity of those observed in-progress, and performance of No. 18 steel bar patterns to size and configuration shown in drawings Nos. ICP-369 and ICP-374.

No items of noncompliance or deviations were identified.

11. Heating and Ventilation System Welding Unit 1

The inspector audited work activities for installation of support steel for air movement ductwork in the general services building. This audit was prompted by the results of plant tour-inspection observations of an undersized weld on a hanger which had not yet been inspected by the contractor's QC inspector. It included examination of eighteen ductwork hangers numbered 25-to-27, 31-to-38, 39-to-42, and 51-to-53, as shown on drawing UNSI-4558-sheet 2. Applicable codes, standards and quality requirements are described in PSAR Section 17, contract specification 216, contractor procedure DH-0001 (UNSI Duct Standards, esp. pages 20 & 22), and UNSI drawing 4558, sheet 2.

Observations, examination of records and interviews of personnel were conducted relative to: location of the hangers, weld profile, weld length, weld wrap-around, weld uniformity and general appearance (e.g., lack of porosity, undercut or other defects). Evidence of pre-welding cleaning of attachment points on painted surfaces was also observed.

No items of noncompliance or deviations were identified.

12. Reactor Pressure Vessels - Units 1 and 4

The inspector audited work activities for the yard storage of the Unit 4 vessel and the protection of the installed vessel at Unit 1. Applicable codes, standards, and other quality requirements are described in SAR Sections 17 and 3.12 (Regulatory Guides 1.38 and 1.39), and contract specifications 211 and 257, and contractor procedures FS-II-2 and FS-III-1.a. The following aspects of the work were considered: covers on nozzles and other openings, dunnage and protection from construction hazards, desiccant indicators for the covered vessel in the yard, locks on the access room on the installed vessel, and interior cleanliness.

No items of noncompliance or deviations were identified.

13. Reactor Vessel Internals Unit 1

The inspector observed storage conditions for the reactor vessel internals assemblies, which are stored in a locked metal building on-site. Applicable codes, standards and other special requirements are described in PSAR Sections 17 and 3.12 (Regulatory Guides 1.38 and 1.39), contract specification 211 part 15D, and contract procedures (B&W) FS-II-2 and III-1a. The following aspects of the work were considered: control of access, protection from the environmental conditions, rodent protection, desiccant presence and indication of low humidity within the covered structures.

No items of noncompliance or deviations were identified.

14. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. An unresolved item identified during this inspection is discussed in paragraph 7.

15. Exit Interviews

The resident inspector met with licensee management representatives on January 14, 21 and 28 and February 4, 1980, to discuss the inspector's findings. Attendees at these sessions are so designated in Paragraph 1 of this report. The inspector summarized the scope of his activities and reviewed his findings as discussed in this report. Relative to the followup items, the inspector advised the licensee of the reports required for review.