

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

REGION V

Report No. 50-508/81-10
50-509/81-10

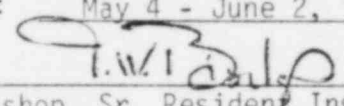
Docket No. 50-508, 50-509 License No. CPPR-154, -155 Safeguards Group _____

Licensee: Washington Public Power Supply System
P. O. Box 1223
Elma, Washington 98541

Facility Name: Washington Nuclear Projects Nos. 3/5 (WNP-3/5)

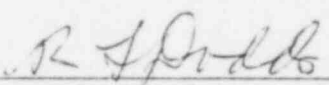
Inspection at: WNP-3/5 Site, Elma, Washington

Inspection conducted: May 4 - June 2, 1981

Inspectors:  6/29/81
T. W. Bishop, Sr. Resident Inspector Date Signed

Date Signed

Date Signed

Approved By:  7/1/81
R. T. Dodds, Chief Date Signed
Reactor Construction Project Section 2

Summary:

Inspection during the period of May 4 to June 2, 1981 (Report Nos. 50-508/81-10 and 50-509/81-10)

Areas Inspected: Routine, unannounced inspection by the resident inspector of construction activities including: containment steel structures; containment welding; containment vessel post weld heat treatment; containment penetration installation and welding; safety-related piping and pipe welding; safety-related pipe supports; safety-related components; structural stud welding; concrete batch plant operations; containment structure reinforcing steel installation; followup on a previous inspection finding; and facility tours.

The inspection involved 84 inspection hours onsite by one NRC inspector.

Results: Of the twelve areas inspected two items of noncompliance were identified: failure to qualify a welding procedure in accordance with ASME Code requirements (paragraph 6) and, failure to specify minimum weld sizes in accordance with ASME Code requirements (paragraph 8).

DETAILS

1. Persons Contacted

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

a. Washington Public Power Supply System (WPPSS)

- *R. S. Leddick, Program Director, WNP-3/5
- D. E. Dobson, Project Manager, WNP-3/5
- *J. C. Lockhart, Project Quality Assurance Manager
- O. E. Trapp, Engineering Manager
- J. A. Puzauskas, Quality Assurance Engineering Supervisor
- C. H. Tewksbury, Quality Assurance Surveillance Supervisor
- N. Blaise, Sr. Project Quality Engineer
- J. Vanni, Sr. Project Quality Engineer

b. Ebasco Services, Inc. (Ebasco)

- *A. M. Curtona, Deputy Project Quality Assurance Manager
- *J. C. Murphy, Project Superintendent
- L. F. Adams, Sr. Project Quality Engineer
- L. A. Bast, Project Quality Engineer
- M. R. Harris, Quality Assurance Engineer
- R. G. Peck, Quality Assurance Engineer
- R. Shetty, Civil Engineer

c. Morrison-Knudsen, Inc. (MK)

- R. Davis, Quality Manager

d. Associated Sand and Gravel (ASG)

- A. Demers, Project Manager

e. Peter Kiewit Sons Co. (PKS)

- D. Paulson, Quality Assurance Manager
- T. Bennington, Quality Assurance Administration Manager

f. Chicago Bridge and Iron, (CBI)

- P. Van Niel, Construction Welding & Quality Assurance Manager
- O. Wein, Project Welding & Quality Assurance Superintendent

* Denotes those attending the NRC Management Meeting on June 2, 1981

2. Followup on Previous Inspection Findings

a. (Closed) Followup Item (50-508/509/80-13-04) Project Management Reorganization

The deintegration of licensee and Ebasco project management organizations was completed on February 1, 1981 for engineering, construction, and project management and on March 23, 1981 for quality assurance. The deintegrated structure was examined during April 1981. Findings resulting from the examination are documented in NRC Inspection Report No. 50-508/509/81-08. This item is closed under number 50-508/509/80-13-04.

3. Containment Steel Structures

CBI containment steel structural activities for Units 3 and 5 were examined. The examination included a review of ten containment drawings currently in use in the field for adequacy, approval, and to assure the drawings reflected the latest approved revision. The drawings examined were CBI dwg 8, 9, 10, and 11 for Unit 3 and 341, 342, 343, 344, 345 and 346 for Unit 5. Other activities examined included inspection of storage, handling, and receiving of materials, fit up and placement of materials, and inspection coverage. The activities were examined for compliance to the requirements of the PSAR, the ASME B&PV Code, the CBI Quality Assurance Manual, and approved drawings.

All items were found to be in accordance with requirements. No items of noncompliance or deviations were identified.

4. Containment-Structural Steel Welding

CBI Activities related to Unit 3 and Unit 5 containment welding were examined for compliance to approved CBI welding procedures, the contract specification, the ASME B&PV Code, and the PSAR. Observations were made of joint fit up and alignment, preheat, identification, weld location, use of specified weld filler material and approved welding procedures, checks of burn off rate, interpass temperature control, weld sequence, welder technique, final weld configuration, and quality control coverage. Unit 3 observations were made of six dome joints and Unit 5 of four dome hard point installations. The qualifications of nine welders were reviewed as well as quality records for Unit 3 dome materials receiving inspections. Weld filler material storage, temperature control, issuance, handling, and field control were examined at both the Unit 3 and 5 issue stations and work areas.

All activities were found to be in accordance with pertinent requirements. No items of noncompliance or deviations were identified.

5. Unit 5 Containment Vessel Post Weld Heat Treatment

The inspector examined the conduct of Unit 5 containment vessel PWHT activities for compliance with procedural, PSAR and ASME code specified requirements.

The containment vessel had been instrumented with dual thermocouples (one a spare) at each temperature monitoring location. Thermocouple locations had been chosen to assure monitoring of the hottest and coldest temperatures and temperature variations. Strip chart recorders had been calibrated and sufficient spares were on hand. The inspector examined documentation verifying strip chart recorder calibration and thermocouple accuracy certification.

The CBI training sessions for personnel involved in the activities were observed. The licensee and CBI had developed and utilized checklists to be used by contractor and licensee QA personnel assigned to surveillance functions. The checklists were examined and appeared satisfactory.

The inspectors toured the vessel and selectively examined insulation placement, preparations for dimensional stability and thermal expansion, burner locations, and precautions precluding direct flame impingement.

The PWHT heatup and cooldown rates, final temperature and holding times were specified and consistent with applicable ASME code requirements. Observation of the inprocess heatup, hold time and cooldown verified compliance with these code specified requirements.

No items of noncompliance or deviations were identified.

6. Containment Penetrations Installation and Welding

PKS activities related to the installation of Unit 3 containment penetrations for the safety injection system recirculation sump discharge (Nos. 23 and 24) were examined for compliance to the requirements of the PSAR, the ASME B&PV Code, the contract specification, and implementing procedures and design drawings. The examination included a review of PKS welding procedure No. PKS-WPS-8s, revision 4, and their subcontractor's liquid penetrant examination procedure (Peabody procedure No. 23.A.1, revision 4) for technical adequacy, proper approval, and current revision. Other examinations included observations of method of assembly, protection of the penetration assemblies, quality control inspection coverage, and welding activities. Welding examination included observation of fit up activities for field weld No. 5 of penetration No. 23 and the following activities for field weld No. 5 of penetration No. 24: preheat, filler material control, welder technique, welder qualification (three welders), welding equipment condition, interpass temperature control, weld interpass cleaning and grinding, quality control inspection coverage, and documentation of weld data sheets.

Of the areas examined, a concern was identified relating to the technical adequacy of welding procedure No. PKS-WPS-8s, revision 4, being used on field weld No. 5 of penetration No. 24. The weld is specified as an ASME Section III, Class 2 weld. The materials being joined by this field weld are a SA-106, Grade B, 40" diameter pipe previously welded to the containment, and a 40" diameter SA-155 KCF70 material section of the penetration assembly. Weld joint thickness is 1½ inches. The SA-155 KCF70 material is classified as P-1, Group 2 type welding material and was required to be impact tested. (Contract No. 3240-54, Section 2A-13.07). The SA-106 material is classified as P-1, Group 1 welding material. The ASME B&PV Code specifies supplemental requirements for welding involving impact tested materials and weld joints exceeding 5/8" in thickness. These supplementary requirements are specified by Section III, Subsection NC-4332 and Section IX, paragraph QW-251.2 and include the following requirements: (QW-403.4)... "when joints are to be made between base metals from two different groups, a procedure qualification must be made for the applicable combination of base metals..."; (QW-406.3) requalification is required for "an increase in the specified maximum interpass temperature..."; (QW-409.1) requalification is required for "... a change in the ranges of amperage, voltage, or travel speed...". Contrary to these requirements, procedure PKS-WPS-8s was not qualified for the two different base metal group numbers involved in weld No. 5 of penetration 24; no interpass temperature was identified in the welding procedure specification; and the procedure allowed welding amperages in excess of that qualified, (for example, WPS-8s allows welding of 1/8 inch E7018 filler material at amperages up to 200 amps, whereas the procedure was qualified with amperages of 125 amps and 180 amps by PQR's No-8 and 3). The failure to qualify the welding procedure in accordance with the requirements of the ASME Code is contrary to the requirements of 10 CFR 50, Appendix B, Criterion IX, and is an apparent item of noncompliance (50-508/509/81-10-01).

Examination of the documentation associated with weld No. 5 of penetration 24 revealed that the quality control record copy of the weld data sheet was not current (although the welders copy was current). This condition was immediately corrected. Other activities were found to be accomplished in accordance with requirements. No other items of noncompliance or deviations were identified.

7. Safety-Related Piping and Pipe Welding

PKS activities related to the installation of two runs of Chemical and Volume Control System piping were examined for compliance to the requirements of the PSAR, the ASME B&PV Code, the contract specifications and design drawings. The runs examined are designated 3CH-A13-85 and -95. The activities included a review of weld data sheets for six field welds, nondestructive examination records, welder qualification sheets, and work packages, visual examination of the six field welds (Nos. 13, 14, and 15 for run 85 and Nos. 21, 22, and 23 for run 95) and a walk down of the runs to verify installation in accordance with drawing and code requirements.

No items of noncompliance or deviations were identified.

8. Safety-Related Pipe Support and Restraint Systems

The inspector examined four safety-related pipe support drawings and in process installation for compliance to the requirements of the PSAR, the ASME B&PV Code, and the contract specification. The supports examined are designated Nos. 3G-CH-291, 3G-CH-292, 3G-CH-267, and 3G-CH-269.

The examination revealed that one weld (No. 1) on support No. 3G-CH-267 was specified on the design drawing to be less than that allowed by the ASME B&PV Code, Section III, Appendix XVII, paragraph 2452.1 of the code provides the requirements for minimum fillet weld sizes. This section requires that for joining materials with the thicker member greater than 3/4 inches the minimum fillet shall be 5/16 inch. Weld No. 1 for hanger 3G-CH-267 joins 3/8 inch thick member to a 0.930 inch thick beam flange and calls for a weld size less than 5/16 (1/4 inch), contrary to Code requirement. Four additional support drawings were then examined (Nos. 3G-SI-115R, 3G-CH-133, 3G-CH-135, and 3G-CH-163). Of these four additional drawings two were found to specify welds smaller than the minimum size allowed by the ASME Code (welds 1 and 2 on support 3G-CH-163 and weld 1 on 3G-CH-135). The failure to properly translate design requirements from the ASME Code to the design drawings is contrary to the requirement of 10 CFR 50, Appendix B, Criterion III and is an apparent item of noncompliance (50-508/509/81-10-02).

No other items of noncompliance or deviations were identified.

9. Safety-Related Components

Safety-related storage areas on the plant island were examined to determine compliance with requirements relative to equipment and piping identification, lubrication, protective caps, coatings, heaters, proper protection and handling, and surveillance/inspection coverage. The PKS activities related to in-place protection and storage of the four Unit 3 and Unit 5 auxiliary feed-water pumps was also examined. Each activity was reviewed for compliance to the requirements of the PSAR, the contract specification, ANSI-N45.2.2, and ANSI-N45.2.3.

Lampson activities related to the handling of Unit 3 NSSS components (the reactor vessel, steam generators, and the RV head) were examined. This included a review of the barge off-load procedures (LUR-WP-10, LUR-WP-11, and LUR-WP-12), and observation of off-load, transport, and storage activities at the barge slip. The procedures and activities were examined for compliance to the requirements of the PSAR, contract specifications, ANSI-N45.2.2, and ANSI-N45.2.3.

No items of noncompliance or deviations were identified.

10. Structures and Supports (Welding)

MK structural stud welding activities in Unit 3 and Unit 5 reactor auxiliary buildings were examined for compliance to the requirements of the PSAR, contract specifications, applicable design drawings, and MK procedure AI-15. Ten studs at Unit 3 reactor auxiliary building elevation 417.5 feet and fifteen studs at Unit 5 reactor auxiliary building 390 feet elevation were examined. The examination included observations of weather protection, fit up, surface condition, location, procedure compliance, materials, condition of welding equipment, completed weld quality, stud testing, and quality control coverage.

All activities observed were found to be in accordance with pertinent requirements. No items of noncompliance or deviations were identified.

11. Concrete Batch Plant Operations

The inspector examined the following aspects of Associated Sand and Gravel (AS&G) main and standby concrete batch plant operations: accuracy of material control, temperature control, control of batch records, inspection, testing, equipment performance, aggregate/cement/water/admixture storage and handling, moisture control, and mix design adherence. The activities were examined for compliance to the contract specification, ASTM, PSAR, and pertinent contractor procedure requirements (ASG Inspection Procedure No. 4, ASG Control of Measuring and Test Equipment Procedure No. 6, and ASG Handling, Storage, and Shipping Procedure No. 7).

The operations observed were found to be satisfactory. No items of non-compliance or deviations were identified.

12. Containment Structure Reinforcing Steel Installation

J. A. Jones activities related to the installation of reinforcing steel for the Unit 3 containment D-ring structure and the reactor vessel primary shield were examined for conformance to the requirements of the PSAR, contract specification, ACI-318, design drawings (G-2300 and 2500 series) and the bar bending schedules (B-2000 series). Reinforcing bar lap splice lengths were verified to be in accordance with drawing requirements. The drawing requirements were verified, by calculation, to be in accordance with ACI-318 requirements.

The activities observed were found to be in accordance with requirements. No items of noncompliance or deviations were identified.

13. Employee Freedom to Express Concerns Regarding Quality

A site contractor (Wallace Superior) recently issued a memorandum (April 6, 1981) to his employees stating that instances of questionable quality must

be identified to the contractor's management before such matters are taken up with WPPSS/Ebasco or the NRC and that failure to do so will subject the individual to immediate dismissal. While the intention of the memorandum is supported (i.e., identify all quality concerns through appropriate channels), it is conceivable that conditions may exist where an employee may be fearful of identifying specific problems to his management. In these cases it is appropriate for the individual to express his concerns to construction manager, owner, or regulatory body without fear of reprisal (e.g. dismissal). The inspector's concerns regarding the wording of the memorandum were identified to the contractor's and licensee's management representatives. Licensee management agreed to examine the situation and initiate appropriate action. This item will be further examined in the next inspection (50-508/509/81-10-03).

14. Inspection Tours of Site Facilities

At various times during the inspection period the inspector made tours of the Unit 3 and 5 plant island and material storage areas, examining general housekeeping, QC and craft supervisory coverage for work activities, availability of work documents, equipment calibration status, tagging and identification of materials, and protection of installed equipment.

No items of noncompliance or deviations were identified during the inspection tours.

15. Management Meetings

Management meetings were held on May 15 and June 2, 1981. Licensee and Ebasco representatives that attended the June 2, 1981 meeting are denoted in paragraph 1. During the meetings the inspector summarized the scope and findings of the inspection identifying the items of noncompliance discussed in paragraphs 6 and 8. Licensee representatives stated that actions would be initiated on the concerns identified.