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

REGION V

Report No. 50-508/80-06
50-509/80-06

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

Licensee: Washington Public Power Supply System

P. O. Box 468

Richland, Washington 99352

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

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

Inspection conducted: June 25 - July 18, 1980

Inspectors: RJ Dodds for 8/28/80
T. W. Bishop, Sr. Resident Inspector Date Signed

Date Signed

Date Signed

Approved By: RJ Dodds for 8/28/80
R. C. Haynes, Chief, Projects Section, Reactor Construction and Engineering Support Branch Date Signed

Summary:

Inspection during the period of June 25 - July 18, 1980 (Report Nos. 50-508/80-06 and 50-509/80-06)

Areas Inspected: Routine, unannounced inspection by the resident inspector of construction activities relating to containment structural concrete; fuel handling building and auxiliary building concrete; concrete field testing; structural steel bolting; structural steel welding; polar crane support system welding; and general construction and housekeeping activities.

The inspection involved 65 inspector-hours onsite by one NRC inspector.

Results: Of the seven areas inspected two items of noncompliance were identified (Infraction-failure to establish measures to indicate inspection status; Infraction-failure to properly accomplish and inspect welding).

RV Form 219 (2)

DETAILS

1. Persons Contacted

In addition to the persons listed below, the inspector interviewed several engineering, inspection, supervisory and craft personnel at the site concerning quality affecting activities. Mr. G. Hansen of the Energy Facility Site Evaluation Council, State of Washington was also contacted.

Washington Public Power Supply System (WPPSS)

W. J. Talbott, Division Manager, WNP-3/5
* C. E. Love, Deputy Division Manager, WNP-3/5
* J. C. Lockhart, Project Quality Assurance Manager
* O. E. Trapp, Project Engineering Manager
* R. A. Davis, Sr. Project Quality Engineer
* R. Hicks, Sr. Project Quality Engineer
* G. L. Fones, Sr. Project Quality Engineer

Ebasco Services, Inc. (Ebasco)

A. M. Cutrona, Deputy Project Quality Assurance Manager
* L. F. Adams, Sr. Project Quality Engineer
* L. A. Bast, Project Quality Engineer
* C. M. McClaskey, Lead Project Quality Engineer
* T. E. Williamson, Lead Project Quality Engineer
* C. S. Kudla, 213 Contract Engineer

Chicago Bridge and Iron (CBI)

J. W. Cain, Project Welding and QA Superintendent

Morrison-Knudsen, Inc. (MK)

F. C. Edler, Project Quality Manager

Pittsburgh Testing Laboratory (PTL)

L. Root, Level II Technician (Concrete)
P. McLaughlin, Level I Technician (Concrete)

* Denotes those present at the NRC management meeting on July 18, 1980. Other management meetings were held on July 2, 10, and 17, 1980.

2. Structural Concrete

a. Observations of Work and Work Activities - Unit 3 Containment

The J.A. Jones activities related to the preplacement and post-placement of concrete inside the containment vessel were observed. The observations included examinations of embedments, form work, cleanliness, preplacement inspection, concrete finishing, curing, and postplacement inspections for pour No. 3RB0025. The activities

were observed for compliance to the pertinent contract drawings, the approved J.A. Jones concrete placement procedure (No. WE-WP-5, Rev. 3), and the PSAR. The activities were found to be in accordance with requirements. No items of noncompliance or deviations were identified.

Epoxy pressure grouting under the containment vessel was observed for compliance to the requirements of the PSAR and the approved contractor's work procedure (No. WE-WP-7, Rev. 3). The observations included examinations of equipment testing for mix uniformity, actual grouting activities, and quality surveillance. No items of noncompliance or deviations were identified.

b. Observations of Work and Work Activities - Unit 3 Fuel Handling Building and Reactor Auxiliary Building

The Morrison-Knudsen (M-K) activities related to the preplacement, placement, and postplacement of concrete for Unit 3 pour Nos. 3ABW016-404 and 3FHW-210-205 were observed for compliance to the design drawings, the controlling M-K procedure (Construction Procedure No. CP-01, Rev. 3) and the PSAR. The observations included examination of reinforcing steel and other embedment installation, form work, cleanliness, concrete delivery, handling, placement, consolidation, curing, and inspections prior to, during, and following concrete placements. All observed activities were found to be in accordance with pertinent requirements. No items of noncompliance or deviation were identified.

c. Observations of Work and Work Activities - Field Testing of Concrete

The Pittsburgh Testing Laboratory field testing of concrete for placements Nos. 3ABW016-404 and 3FHW-210-205 were observed for compliance to the requirements of the PSAR (with regard to testing frequency) and the appropriate ASTM standards (with regard to testing technique). The testing observed included slump, air entrainment, and temperature. No items of noncompliance or deviations were identified.

3. Safety-Related Structural Steel (Bolting)

Observations of Work and Work Activities - Unit 3/5 Reactor Auxiliary Buildings

The M-K activities related to the erection of structural steel members for the northeast quadrant (390 ft. elevation) of the Unit 3 auxiliary building and the northwest quadrant (362 ft. elevation) of the Unit 5 auxiliary building, and various other areas were observed for compliance to the approved M-K procedure (Construction Procedure No. CP-05, Rev. 3) the PSAR, and applicable design drawings. These observations included examinations of materials utilized, bolted joint configurations, bolt installation activities, and inspections of completed work.

Examination of the joint connecting 36" beam No. 343E to column No. 412B revealed welding of the beam clips to the column, whereas the applicable drawing (No. G3240-4841, Rev. 7) specifies that this joint was to be a bolted connection, without welds. While this joint had not been finally accepted by the contractor, it is apparent that QC was involved

in the addition of the unauthorized welds as evidenced by a QA inspectors initials and the statement "ok to weld" marked on the beam. The acceptability of the welded configuration is currently under licensee review. This item is unresolved (508-/80-06-01).

Examination of the joint connecting beam No. 278C to the west wall of Unit 3 auxiliary building at the 362 ft. elevation identified the lack of plate or bar type washers over the slotted hole connection. The governing AISC "Specification for Structural Joints Using ASTM A329 or A490 Bolts" requires that plate or bar type washers be used to cover the long slots that are in the outer plies of a high strength bolted connection. Investigation by the contractor established that the joint had never received final inspection even though the associated concrete placement had been completed (concrete placement No. 3ABS-008-362.5) The Structural Steel Erection checklist for the placement was completed on January 4, 1980, indicating all required inspections were complete. The contractor's practice has been to document the inspection of each joint on an inspection report, however, no formal system was provided to assure all joints receive examination. Moreover, a large number of field change notices have been issued against the structural steel drawings changing joint configurations from bolted to welded and vice versa, making it difficult to determine whether a particular joint has received the proper inspection. Licensee and contractor representatives stated that this may have contributed to the bypassing of the joint on beam 278C. The contractor had not established a control system which insures each joint has received an appropriate inspection. The failure to establish measures which provide for the identification of items which have passed required inspections and preclude inadvertent bypassing of such inspections is in apparent noncompliance with the requirements of 10 CFR 50, Appendix B, Criterior XIV (508/509/80-06-02).

No other items of noncompliance or deviations were identified.

4. Structural Steel Welding

a. Observations of Completed Structural Steel Welding - Unit 3 Reactor Auxiliary Building

Welding inspections which were documented on four M-K Inspection Reports (Nos. SW-523, SW-515A, SW-513, and SW-496) were examined. The reports documented recent inspections of various clip welds, full penetration beam welds, and the addition of reinforcing plates to structural beams. The welds were examined for compliance to the requirements of the pertinent drawings or change requests, contractor's inspections procedure (Administrative Instruction No. AI-14, Rev. 0), the AWS Structural Welding Code AWSD1.1, and the PSAR. The examination revealed one reinforcing plate on the lower east side of beam 247A (documented on inspection report No. SW-496) which contained a ground out area along the full length of the toe of the weld approximately 3/16" wide and up to 1/8" deep (plate thickness 3/4"). The AWS Structural Welding Code AWSD1.1, paragraph 3.7.1 provides for the removal base metal to correct defects but calls for the addition of weld metal to compensate for any deficiency in size. (For reference, paragraph 3.6.4 of this code limits weld undercut to no more than 0.01 in. deep when the weld is transverse to the primary stress in the part that is undercut and

no more than 1/32 in. when the weld is parallel to the primary stress.) The failure to accomplish the welding in accordance with requirements is in apparent noncompliance with 10 CFR 50 Appendix B, Criterion V, (508/80-06-03).

No other items of noncompliance or deficiencies were identified.

b. Observations of Structural Steel Welding - Unit 3 Polar Crain Girder/Rail

Chicago Bridge & Iron (CBI) activities related to the seal welding of the Unit 3 polar crane girder and anchoring of the crane rail were examined for compliance to the requirements of applicable design documents (seal welding-FCR-V-002, rail installation-CBI dwg 74-3431, 13, Rev. 2), pertinent welding procedures, AWS Structural Welding Code AWS D1.1, and the PSAR.

The inspector found that seal welding, joint preheating, and filler material control were being performed in accordance with applicable requirements. While the welding aspects of the crane rail anchoring were in conformance with requirements several rail splice bolts had been flamed out to resolve an interference problem. It was subsequently determined that this problem had been identified by the contractor's QC personnel and was in the process of being resolved through normal channels. The inspector had no further questions on this item at this time. In examining the controls CBI has established for the installation of the rail systems, the inspector questioned whether the contractor had generated adequate procedures to assure non-welded assemblies are properly installed and inspected (i.e. verification of proper materials, configurations, and bolting). Licensee representatives agreed to examine the controls which are currently applied and initiate appropriate action. This item is unresolved (508/509/80-06-4).

No items of noncompliance or deficiencies were identified.

5. Site Tours

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 conditions, QC and craft supervisory coverage of work activities, equipment calibration status, tagging and identification of materials, and protection of installed equipment.

No items of noncompliance or deficiencies were identified.

6. 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. Two unresolved items were identified during this inspection and are discussed in Paragraphs 3 and 4b.

7. Management Meetings

Management meetings were held on July 2, 10, 17, 1980, and with a summary meeting on July 18, 1980. Licensee and EBASCO representatives attending the July 18, 1980 meeting are denoted in paragraph 1. During the meetings the inspector summarized the scope and findings of the inspection, identifying the items of apparent noncompliance discussed in paragraphs 3 and 4a of this report, and the unresolved items discussed in paragraph 3 and 4b. Licensee representatives were responsive and initiated corrective measures. The effectiveness of the licensee's actions will be examined following receipt of the licensee's formal reply to the items of noncompliance.