

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

REGION V

Report No. 81-04
50-460
Docket No. 50-513 License No. CPPR-134, -174 Safeguards Group _____
Licensee: Washington Public Power Supply System
P. O. Box 968
Richland, Washington 99352

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

Inspection at: WNP-1/4 Site, Benton County, Washington

Inspection conducted: April 13-16, 1981

Inspectors: J. O. Elin 5-11-81
J. O. Elin, Reactor Inspector Date Signed
A. D'Angelo 5/11/81
A. D'Angelo, Reactor Inspector Date Signed

Approved By: R. T. Dodds Date Signed
R. T. Dodds, Chief, Reactor Project Section 2, Date Signed
Reactor Construction Projects Branch

Summary:

Inspection during the period of April 13-16, 1981 (Report Nos. 50-460/81-04 and 50-513/81-04).

Areas Inspected: Routine, unannounced inspection by regional based inspectors of construction activities including: licensee action on previous inspection findings, investigation of alleged cable tray burrs, and review of containment steel structures and supports quality records. The inspection involved 44 inspector-hours onsite by two NRC inspectors.

Results: No items of noncompliance or deviations were identified.

DETAILS

1. Individuals Contacted

a. Washington Public Power Supply System (WPPSS)

- *D. W. Mazur, Program Director, WNP 1 & 4
- *F. Hood, Manager Quality Assurance & Safety
- *C. R. Edwards, Project Quality Assurance Manager
- *M. E. Rodin, Quality Assurance Engineer

b. Bechtel Power Corporation (BPC)

- *D. Johnson, Manager of Quality
- *G. Hierzer, Field Construction Manager
- *J. B. Gatewood, Project Quality Assurance Engineer

c. United Engineers and Constructors (UE&C)

- *G. Ahearn, Resident Construction Manager
- *G. Faust, Field Superintendent of Quality Assurance

d. H. P. Foley/Wismer and Becker (F/W&B)

- *L. Adams, Project Manager
- *L. Maenpaa, Quality Director
- *R. Jones, Quality Assurance Manager
- *B. Liles, Assistant Project Manager
- *C. Needham, Assistant Engineering Manager
- P. Merlin, Quality Control Manager
- J. Shaffer, Quality Control Inspector
- C. Morelock, Quality Control Inspector
- D. Freytag, Quality Control Inspector

e. J. A. Jones Construction Company (JAJ)

- *B. Roe, Project Quality Assurance Manager
- *J. Coretz, Project Manager
- *R. Gates, Engineering Manager

In addition to the persons identified above, various other quality control, engineering and craftsman were interviewed.

*Denotes exit interview attendees.

2. Site Tour

Upon arrival at the site, the inspectors toured the WNP 1 and 4 plant areas to observe completed work and work in progress to ascertain general compliance to industry standards and regulatory requirements. Activities examined included concrete form work, rebar installation, concrete preplacement, housekeeping, electrical equipment maintenance, raceway installation, and raceway and pipe support welding. Areas included Unit 1 containment and general services building, Unit 4 containment, and J. A. Jones laydown area for Unit 4.

The inspector examined the J. A. Jones pipe laydown area of Unit 4 for compliance with established measures to control the storage and preservation of material.

Several pipe spools were found without status tags; two spools were found without end plugs; and approximately 20 status tags were found unattached to pipe spools within the laydown area. No damage to the pipe spools was identified. Surveillance of the laydown area was promptly performed by United Engineers and Constructors who applied hold tags on the pipe spools without status tags and removed the loose status tags.

The licensee committed to perform a surveillance of all laydown areas for Units 1 and 4. No items of noncompliance or deviations were identified.

3. Investigation of Allegations concerning Cable Tray Burrs

Allegation:

The Region V Office of the Nuclear Regulatory Commission (NRC) was contacted on April 2, 1981 by an individual who stated that specification requirements which had previously required removal of all burrs had been modified to require removal of burrs from side rails and upper portions of tray rungs only (areas inside tray). The specific concern of the allegor was that cable may sag in the tray and come in contact with burrs left on the rung edges and thereby suffer damage.

NRC Finding:

The allegation was not substantiated. The NRC Resident Reactor Inspector at WNP-2 and a regional based inspector interviewed the allegor and examined various sections of cable tray to determine the hazard to cable presented by burrs which were acceptable under the revised specification. The licensee and electrical contractor set up a tray section with various size cables and various size rope and string to demonstrate the amount of cable sag expected in these tray sections. The risk of cable contact with the rung edges appeared minimal. The inspector noted that the maximum rugg spacing allowed was about 12 inches (tray joints and horizontal 90° elbows). The allegor and the inspectors agreed that (1) there was no violation of codes and standards and (2) an adequate evaluation of cable damage potential could best occur after cable installation. (Note: cable installation had not started on the WNP-1/4 site at the time of this investigation.) This item is to be examined by NRC inspectors during the inspection of cable installation.

4. Licensee Actions on Previously Identified Enforcement Items and Followup Items

a. (Open) (460/80-07-01) Enforcement Item:

Undersize Fillet Welds on Cable Tray Supports

Cable tray support structure welds which had been accepted by Foley/Wismer & Becker (FWB) Quality Control Inspection had undersize fillet welds exceeding 10% of the weld length, contrary to weld specifications.

In response to this item of noncompliance, the licensee stated by letter on July 25, 1980, that 10 supports, containing 742 accepted welds, had been reinspected and 26 welds were found undersize. The licensee's letter also stated FWB would reinspect 55 supports in 11 different plant areas to identify the extent of the problem. Additionally, the licensee detailed that training sessions were held for welders and quality control inspectors and weld fillet gages were issued to craft personnel.

During this inspection, the results of FWB's survey of 50 supports in 10 plant areas were reviewed. FWB inspected 1,133 weld joints on these supports and found approximately 80 (or 7%) with total weld areas less than specified by weld detail drawings. The FWB report did not detail the exact number of welds which failed the criteria of undersize fillets exceeding 10% of the specified weld length.

The engineering analysis of the significance of this finding on the adequacy of the effected structural supports and compliance to AWS D.1.1 was not complete. The licensee, in addition, did not have a list of supports potentially effected but estimated the total as between 600 and 1,000 supports. FWB personnel stated that a list of supports could be prepared, if the engineering disposition required rework of these welds.

As the inspector was not able to determine the extent or significance of these undersize welds this item will remain open.

b. (Closed) (460/513/81-01-01) Followup Item:

Housekeeping

During an inspection in January 1981, poor housekeeping practices were observed, particularly in the Unit 4 containment building. During this inspection housekeeping practices in the Unit 4 containment building, the Unit 1 containment and general service buildings were examined. The inspectors noted improvements in the housekeeping practices and storage of safety related components. The licensee's actions to clean and remove foreign material from areas where safety related work is in progress appears to have been effective. This item is closed.

c. (Open) (460/80-13-02) Followup Item:

Review of Foley/Wismer and Becker Quality Control Procedures for Cable Installation and Termination

FWB Procedures QCP 10 (Revision 5 of March 3, 1981), Wire and Cable Installation and QCP 11 (Revision 3 of October 23, 1980), Wire and Cable Termination, were reviewed to insure that adequate procedures and work implementing instructions had been specified to control these activities, and that appropriate quantitative and qualitative acceptance criteria for determining that important parameters had been satisfactorily met were included.

The inspector identified weaknesses in the cable installation procedure in that the procedure did not appear to ensure that important cable limits were not exceeded during cable placement. QCP 10 in paragraph 4.2 requires production engineering to determine the maximum allowable pulling tension, minimum cable bending radius, maximum conduit sidewall pressure, and minimum pulling temperature. These parameters are limits placed on the cable by the manufacturer. Controls to ensure that, prior to and during cable placement, the actual installation conditions comply with the manufacturers limits were not specified. The procedure, as written and approved for construction March 5, 1981, did not appear to include effective controls to assure these limits would not be exceeded. The licensee agreed to evaluate these areas and make necessary procedure modifications prior to starting safety related cable installation.

This item remains open.

d. (Open) (460/80-13-03) Followup Item:

Inclusion of Regulatory Guide 1.75 (IEEE 384) Requirements in Electrical Contract Specification and Raceway Installation Procedure

The NRC inspection during October, 1980, identified that Foley/Wismer and Becker (FWB) procedures did not include inspection criteria to verify compliance with IEEE-384 and Regulatory Guide 1.75. The Foley/Wismer and Becker Contract (9779-218) has been modified to include separation criteria in accordance with Regulatory Guide 1.75. These contract modifications are reflected in FWB Quality Control Procedure for Installation of Raceway (QCP-9), Revision 3 of March 3, 1981. However, the inspector noted several problem areas in these documents:

- (1) Where minimum separation of tray or conduit cannot be met, the contract specification requires the use of fire barriers in accordance with Section 16d, Chapter 22, Fire Barriers and Firestops. The fire barrier drawings did not detail cable separation from the barrier in accordance with IEEE 384.

- (2) The specification defines the use of flexible conduit as a cable support instead of rigid conduit, where freedom of motion is required. The specification does not state the separation requirements for flexible conduit or define the type of flexible conduit to be used if the flexible conduit is to be considered equal to rigid conduit as a fire barrier.
- (3) The specification defines the use of "M" division as an associated circuit and as a safety related division (swing bus). This use has not been defined in the PSAR and was not thoroughly detailed in the FSAR draft presented to the inspector.

This item will remain open pending licensee's action in these areas.

e. (Open) (460/80-16-04) Enforcement Item:

Pipe support installation nonconforming with detail drawing.

During the inspection of December 16-19, 1980 (Inspection and Enforcement Report Nos. 50-460/80-16 and 50-513/80-16) the inspector observed pipe support CCW-54-SG-106, which had been shop inspected and accepted on April 24, 1979, to have incorrect weld orientation.

The licensee's response to the item identified was submitted by letter nos. G01-81-031 dated February 30, 1981 and G01-81-058 dated March 5, 1981.

The inspector reviewed surveillance performed by United Engineers and Constructors between January 19-22, 1981 on pipe supports supplied by Huico. Surveillance of sixty-six (66) supports revealed four (4) hangers with undersize welds, three (3) hangers with incorrect weld orientation and one (1) hanger with insufficient weld length. Hangers with undersize welds and insufficient weld length are concerns which were addressed in IE Inspection Report No. 50-460/80-01 as Enforcement Item No. 460/80-01-02, which is open at present. Hangers with incorrect weld orientation were documented by Nonconformance Report No. 1-NCR-123-46 and was dispositioned by engineering to use as is. Pipe support CCW-54-SG-106, which was discussed in Inspection and Enforcement Report No. 50-460/80-16 and 50-513/80-16, was documented by the licensee on Nonconformance Report No. 1-NRC-123-43 and was dispositioned by engineering to use as is.

UE&C had determined that incorrect weld orientation on the above mentioned pipe supports are acceptable as is and the load capacity of the pipe supports is independent of the side of the web or flange on which the weld is made.

The licensee's response to the enforcement item (letter no. G01-81-58 dated March 5, 1981) indicated that Corrective Action Request No. H.O. 23-3 had been issued to the fabricator of the subject pipe supports. The Corrective Action Request and the fabricator's response will be examined during a future inspection.

f. (Closed) (460/81-02-10) Open Item:

Utilization of design guide.

Local stress in the flange in pipe support CCW-54-SG-106 was determined to be above allowable. An engineering hold had been placed on the support June 24, 1980 (Hold Control Form #806). A revised drawing for the pipe support in question will be issued upon completion of United Engineers and Constructors piping engineering review.

Since the item had already been identified by UE&C Engineering, and corrective action was being established, this item is considered closed.

5. Containment (Steel Structures and Support)

a. Review of Quality Records

The inspector reviewed Shurtleff and Andrews Quality Assurance Procedure No. 3 (Installation and Inspection of High Strength Bolts) to insure that activities effecting quality were adequately prescribed and in compliance with American Institute of Steel Construction Code.

Several Field Inspection Reports for high strength bolted connections were reviewed and found to be in accordance with Quality Assurance Procedure No. 3. During the review of inspection reports the inspector identified several Shurtleff and Andrews bolted connections which had been accepted by Quality Control then unbolted for construction aid. Although the licensee had noted that the unbolting of a Quality Control accepted connection would require a Field Change Notice/Project Change Proposal (FCN/PCP) to be generated and logged, no consistent specification requirements were found to exist for site contractors to control FCN/PCP's which affect drawings or procedures. The inspector was not able to determine how Shurtleff and Andrews was tracking the unbolting of connections which had been previously accepted by Quality Control.

The licensee stated that the specification requirements will be modified for all site class I contractors to establish a consistent requirement for control of FCN/PCP's.

This area will be examined during a future inspection (460/81-04-01).

6. Exit Interview

The inspectors met with the licensee's representatives, denoted in paragraph 1, at the conclusion of the inspection on April 16, 1981. The scope of the inspection and the inspector's observations and findings were discussed.