

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

REGION V

Report No. 50-460/80-13
50-513/80-13

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: October 20-23, 1980

Inspectors: D. F. Kirsch 11-21-80
D. F. Kirsch, Reactor Inspector Date Signed

P. P. Narbut 11-21-80
P. P. Narbut, Reactor Inspector Date Signed

Approved By: R. C. Haynes 11/21/80
R. C. Haynes, Chief, Projects Section Date Signed

Summary:

Inspection during period of October 20-23, 1980 (Report Nos. 50-460/80-13 and 50-513/80-13)

Areas Inspected: Routine, unannounced inspection by regional based inspectors of construction activities including: Licensee action on previous inspection findings and IE Bulletins; procedure and quality document reviews relating to painting of containment equipment and components; electrical and instrumentation installation quality implementing procedure review; and containment systems procedure and specification review. The inspection involved 48 inspector-hours onsite by two NRC inspectors.

Results: Of the four areas inspected, no items of noncompliance or deviations were identified in three areas; one apparent item of noncompliance was identified in the area of painting of containment equipment and components (paragraph 4.b - failure to provide adequate procurement controls for paint to be used within the containment).

RV Form 219 (2)

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DETAILS

1. Individuals Contacted

Washington Public Power Supply System (WPPSS)

*M. E. Witherspoon, Quality Assurance Manager
*J. P. Thomas, Deputy Project Manager
*T. J. Houchins, Project Quality Assurance Manager
A. G. Hosler, Project Licensing Engineer
N. S. Porter, Design Engineering Supervisor
N. J. Irwin, Senior Quality Assurance Engineer
J. Carson, Senior QA Engineer
L. Oakes, Piping Project Design Engineer

United Engineers and Constructors (UE&C)

*G. E. McIntosh, Assistant Deputy Project Manager
*E. C. Haren, Deputy Project QA Manager
*S. Loprete, QA Engineer
L. Martin, Piping Supervisor
K. Iverson, Supervisor Power Engineering

J. A. Jones Inc. (JAJ)

W. Roe, QA Manager
J. Felder, QA Supervisor

*Indicates presence at exit interview.

2. Licensee Action on Previous Followup Items

(Closed) Followup item (460/79-07/02): The concrete expansion anchor installation procedure did not provide quantitative values for angularity

The concrete expansion anchor installation procedure, ITI-005, Revision 2B, dated 8-7-80, now includes quantitative criteria for the angularity of installation. This item is closed.

3. Licensee Actions on IE Bulletins

a. (Open) Bulletin 79-02: Pipe Support Base Plate Design Using Concrete Expansion Anchor Bolts (ref: IE Inspection Report No. 50-460/79-14)

It was previously identified that the licensee's anchor bolt installation procedure did not ensure minimum embedment of expansion anchor bolts. The licensee's installation procedure ITI-005, Revision 2B of 8-7-80 now requires the quality verification inspector to record the actual bolt embedment. The minimum embedment required is given on the pipe support detail drawings. The inspector had no further questions on this item.

The additional licensee actions required to complete the response to the bulletin are described in the licensee's letter to the NRC, No. G01-80-278, dated September 25, 1980.

- b. (Closed) Bulletin 79-03A: Longitudinal Weld Defects in ASME SA-312, Type 304 Stainless Steel Pipe

The licensee's response to the subject bulletin was submitted by letter No. G01-80-221, dated August 7, 1980. The licensee stated that no SA-312 or A-312, type 304 fusion welded pipe is in use or planned for use in safety related systems at WNP-1 and 4.

- c. (Closed) Bulletin 79-11: Faulty Overcurrent Trip Device on Circuit Breaker for Engineered Safety Systems

The licensee's response to the subject bulletin was submitted by letter dated August 6, 1979 and indicated that circuit breakers of the type addressed by the bulletin were not being used on WNP-1/4. The licensee had taken action to inform the NSSS of the problem to preclude the use of those breakers in the redesign of the rod drive tripping function.

- d. (Closed) Bulletin 79-24: Frozen Lines

The licensee's response to the subject bulletin was submitted by letter No. G01-80-258, dated September 15, 1980. The licensee's review of designs for the WNP-1 and 4 project determined that adequate measures had been taken to preclude freezing of safety related water filled lines during cold weather.

- e. (Closed) Bulletin 80-16: Misapplication of Rosemount Inc., Models 1151 and 1152 Pressure Transmitters with either "A" or "D" Output Codes

The licensee's response to the subject bulletin was submitted by letter No. G01-80-222, dated August 7, 1980, and stated that no Rosemount Model 1151 or 1152 pressure transmitters with output codes "A" or "D" are installed or planned for use in safety related applications at WNP-1 and 4.

- f. (Closed) Bulletin 80-19: Failures of Mercury-wetted Matrix Relays

The licensee's response to the subject bulletin was submitted by letter No. G01-80-247, dated September 5, 1980, and stated that no mercury-wetted relays were used in the logic matrix of the reactor protection system for WNP-1 and 4.

- g. (Closed) Bulletin 80-20: Failures of Westinghouse Type W-2 Spring Return to Neutral Control Switches

The licensee responded to the subject bulletin by letter No. G01-80-251, dated September 8, 1980, and stated that type W-2 switches were not used for WNP-1 and 4 safety related applications.

4. Painting of Equipment and Components within Containment

a. Review of Specifications and Procedures

The inspector examined the architect-engineer Specification 9779-211, Revision 0, (Nuclear Steam Supply System (NSSS) and Equipment Installation), Section 1D (Reference Codes and Standards) and Section 9A (Requirements for Shop Painting of Nuclear Power Plant Equipment and Components within Containment) and implementing documents to determine whether the requirements committed to in the PSAR had been implemented. The inspector considered the following in performing the evaluation: PSAR Section 3.12, 6.2 and 17.1, Regulatory Guide 1.54, ANSI Standards N101.2, N101.4 and N5.12.

The following implementing documents of the mechanical contractor, J. A. Jones Inc., and their subcontractor for painting, H. B. Painters Inc., were examined:

- 1) J. A. Jones Procedure ITI 008, Revision 01 of 2-8-80, Quality Control of Surface Preparation and Painting;
- 2) H. B. Painters Inc. Procedure, HBPP-PP-1, Revision 0 of 2-8-80, Surface Preparation and Shop Painting Procedure for Keeler and Long #6548, Keeler and Long #9001 and Mobil Zinc #7; and
- 3) J. A. Jones QA Program Manual, Revision 2, Section 4, Procurement Document Control and WPPSS Procedure, QAP-5, Revision 6, 3/24/77.

The inspector determined that the standards and PSAR commitments had generally been included in the specifications and procedures. In particular, requirements for painting, material qualification, personnel qualification, procedural controls, and acceptance criteria were included in these documents.

b. Review of Procurement Practices

The inspector examined purchase orders issued to procure painting materials. Two purchase orders had been issued by the subcontractor, H. B. Painters Inc., and approved by the site mechanical contractor's, J. A. Jones, Inc., quality assurance group. The inspector found that paint ordered and received pursuant to purchase order No. 1616, dated 11/19/79, did not fully meet the requirements of the architect-engineer's specification. This purchase order was for "Mobil Zinc #7" paint. The material test data which H. B. Painters submitted to J. A. Jones on 12/4/79 demonstrated that the paint did not pass the required decontamination test. The specification requires a decontamination factor of 10; the paint had a decontamination factor of 6.3. However, it appeared that this nonconforming condition was not recognized by the contractor since no "hold tags", nonconformance report or similar controls had been executed to assure that the paint would not be used. The inspector understood that the paint in question had not yet been used.

POOR ORIGINAL

In examining the background on this matter the inspector found three problems which contributed to this failure in procurement controls. The first problem occurred during the processing of an exception to the specific brand of paint called out as approved in the architect engineer's specification. The second problem occurred when the procurement document was generated wherein the paint to be purchased was not properly identified. The third problem found was the apparent inadequacy in review of material certifications data wherein the failure of the paint to meet the decontamination test requirements was not identified although the data had been submitted to J. A. Jones on December 4, 1979, about ten months before this NRC inspection.

The failure of the contractor's control in procuring paint to be used on equipment and components within the containment appears to be an item of noncompliance with the quality assurance program requirements of 10 CFR 50, Appendix B. Painting (coating) of equipment within the containment is a quality affecting activity requiring quality assurance program controls. (460/80-13-01)

Further details on the above mentioned problems follow:

1) Approval of exception to paint approved in specification:

The architect-engineer's (Engineer) Specification No. 9779-211 listed certain coating systems as approved for use, but permitted other coating systems to be used provided that the coating is of the same generic type, has been tested in a laboratory as prescribed in ANSI N 101.2 and 5.12, can meet the environmental conditions delineated in the specification and is approved by the Engineer. This option for an alternate coating system was exercised by the mechanical contractor via contract waiver request, No. CWR-211-039 dated 1/22/79. This CWR requested the use of several base primers including Mobil Zinc #7 (formula 13-F-12), Mobil Zinc Unipack (formula 13-G-10) and Mobil Zinc #7, (formula 13-F-10). The CWR was approved by the Engineer for the use of the zinc based primers, Mobil Zinc #7 (formula 13-F-10) and Mobil Zinc Unipack (formula 13-G-10) but not for the other primers such as Mobil Zinc #7 (formula 13-F-12).

However, the inspector found during his interviews of the personnel involved that neither QA personnel reviewing the contract waiver request nor the engineer approving the waiver had assured that the material requested met the technical requirements of the contract specification. The engineer assumed the contractor via the QA approval had checked the material against the requirements before requesting the waiver. The contractor QA personnel assumed the Engineer would check the material against the requirements before approving same.

2) Identification of material on procurement document:

The inspector found that H. B. Painters' purchase order No. 1616 was written to order "Mobil Zinc #7" but did not specify which formula. This lack of specificity permitted various Mobil Zinc #7 formulas to be supplied, including those which had not been approved by the Engineer. The paint actually received was Mobil Zinc #7 (formula 13-F-12), a material which had not been approved by the Engineer.

3) Review of material certification data:

This problem apparently rests with the timeliness of the review of data provided by suppliers certifying the properties of their products. The data provided in the certification letter submitted by the painting subcontractor to the mechanical contractor on 12/4/79 attested that formulas 13-F-12 and 13-G-10 of the Mobil Zinc #7 paints did not fully pass the criteria established for the decontamination test. Additionally, formula 13-F-10 which had been approved by the engineer was not addressed in the test documents. However, this apparent nonconforming condition had not been identified by the licensee nor the contractors at the time of the HRC inspection.

The above failures in the contractor's procurement controls demonstrate inadequacies in the measures provided to assure that proper material are provided for quality affecting activities. As stated previously, these failures appear to be an item of noncompliance with the regulatory requirements of 10 CFR 50, Appendix B.

5. Electrical and Instrumentation (Cables, Terminations, Components, and Systems)

a. Review of Quality Assurance Implementing Procedures

Contractor documents were examined to determine whether adequate QA plans, QA procedures, QC procedures and work implementing procedures had been specified to control electrical and instrumentation installation activities. The inspector considered the following in performing the evaluation: PSAR sections 7.1.2, 8.3.3, 8.3.5 and 8.1.4; applicable IEEE Standards; and Regulatory Guide 1.75. In addition, the inspector examined for compliance with commitments concerning administrative responsibility and control contained in PSAR Section 8.3.5.2 regarding periodic design reviews, design directives and field reviews. The following documents were examined:

- (1) Specification 9779-L-218 (Main Electrical Contract), Revision 117:
 - (a) Section 16A: General Requirements
 - (b) Section 16D: Electrical Requirements
 - (c) Section 16I: General Specification for Electrical Equipment and Material
 - (d) Section 17A: Supplementary Requirements for Welding and NDE of Nuclear Power Plant Components
 - (e) Section 17B: Supplementary Requirements for Welding and NDE for Structural Welding
 - (f) Section 52G: Quality Assurance
- (2) Drawing 9779-L-306097: Conduit System Notes and Details
- (3) Separation Criteria Document
- (4) Drawing 9779-S-303010: Key One Line Diagram
- (5) Foley/Wismer and Becker Quality Assurance Manual
- (6) Foley/Wismer and Becker Quality Control Procedures as follows:
 - (a) QCP-1: Revision and Control of Documents
 - (b) QCP-2: Procurement
 - (c) QCP-3: Processing and Control of Nonconformances
 - (d) QCP-4: Receiving, Handling and Storage
 - (e) QCP-5: Welder Qualification and Qualification of Welding Procedures
 - (f) QCP-5A: Welding
 - (g) QCP-5B: Welding Electrode Control
 - (h) QCP-6: Orientation, Training and Certification of Personnel
 - (i) QCP-7: Installation of Equipment
 - (j) QCP-8: Control and Calibration of Tools and Instruments
 - (k) QCP-9: Installation of Raceway
 - (l) QCP-15: Maintenance of Electrical Equipment

- (m) QCP-16: Review and Maintenance of Quality Records
- (n) QCP-17: General Housekeeping
- (o) QCP-18: Liquid Penetrant Inspection
- (p) QCP-19: Certification of Liquid Penetrant Inspection Personnel
- (q) QCP-20: Installation of Expansion Anchors
- (r) QCP-26: Grounding
- (s) QCP-29: Supplier Selection and Control

The inspector determined that the codes and standards specified in PSAR paragraph 8.1.4.1 were appropriately addressed or referenced in supplier contract specifications based on his examination of selected specifications for inclusion of these standards.

Foley/Wismer and Becker had not completed the quality control procedures for cable installation and termination. Work in those areas had not begun. These procedures will be examined during a subsequent inspection. (460/80-13-02)

b. Findings

(1) Welder Qualification

The licensee utilizes a welder qualification transfer program, as allowed by AWS D1.1 (Structural Welding Code), to provide a basis for transfer of welder qualification when a welder on-site is employed by different contractor. Specification No. 9779-218 and Foley/Wismer and Becker quality control procedure QCP-5 had been revised to properly account for utilization of the welder qualification transfer program. The inspector observed, however, that the Foley/Wismer and Becker quality assurance manual procedure QAP-9 (Control of Special Processes) provides in paragraph 4.3 that the Manager, Quality Control shall verify through performance tests that only qualified welders are accepted. This apparent inconsistency was brought to the attention of the licensee's Quality Assurance Manager who stated that action would be taken to resolve the inconsistency. The inspector had no further questions.

(2) Inclusion of Class IE Channels in Procedures

The licensee recently specified the inclusion of a channel "M" in the separation criteria document and specification No. 9779-218 as a class IE electrical channel. This channel is required to meet requirements of Regulatory Guide 1.75 and IEEE-384 (Criteria for Independence of Class IE Equipment and Circuits). The inspector observed that channel M was not addressed by the Foley/Wismer and Becker quality control procedures. This was brought to the attention of licensee

POOR ORIGINAL

personnel who stated that the QCP's would be modified as necessary to properly account for channel M. The inspector had no further questions.

(3) Inclusion of Channel Separation Inspections in Procedures

Examination of the Foley/Wisner and Becker quality control procedures identified that the procedures did not include inspection criteria to verify compliance with IEEE-384 and Regulatory Guide 1.75, as committed in the PSAR. Action had been taken to modify the specification. The licensee noted that actions were planned to modify the quality control procedures to include inspections appropriate to the commitments. The inspector will examine those procedural modifications during a subsequent inspection. (460/80-13-03)

6. Containment Systems Procedure and Specification Review

The inspector examined the subject documents at WNP 1/4 relative to the commitments in PSAR paragraphs 6.2.1.6 and 6.2.2.6 (Materials), 6.2.3.2 (valve orientation), and 6.2.5.3 and 6.2.5.6 (Combustible Gas Control System-Materials).

Commitments regarding containment liner material; non-metallic materials; prohibitions for contact of stainless steel with low melting point materials, halogens, sulfur, aluminum; and limits for liquid penetrant halogens and sulfur were found to have been appropriately included in the contract specifications examined (Nos. 9779-204, 213 and 218).

Discussions with engineering and QA personnel indicated that valve orientations are supplied on drawings by UE&C engineers.

The PSAR states that the use of aluminum in containment is "strictly controlled" and that zinc or galvanized material is not used. Licensee representatives stated that aluminum controls are implemented by contract specifications prohibiting aluminum for purchased material and installation services. The inspector verified the inclusion of those prohibitions in a sample of contract specifications. The licensee determined, however, that specification No. 9779-42 (Class 1 Valves) did not contain those aluminum exclusions.

The inspector determined that none of the specifications reviewed contained exclusions for zinc and galvanized material and that galvanized conduit, cable trays and paints containing zinc were specified for use in containment. Licensee representatives demonstrated that zinc and galvanized material in containment has been accounted for in the FSAR sections on containment combustible gas control and noted that certain zinc containing paints had been analyzed. The inspector observed that the electrical contract specifies a zinc rich paint for raceway/support repairs and that contract 9779-211 (NSSS Piping and Equipment Installation) specifies a zinc rich paint for use on pipe supports and other components and equipment inside containment. Based on the above aluminum exclusion and zinc/galvanized material determinations the licensee agreed to evaluate the existing controls over these materials in containment and appropriately verify implementation of those controls. (460/80-13-04)

-9-
POOR ORIGINAL

7. Exit Interview

The inspectors met with licensee representatives (denoted in paragraph 1) on October 23, 1980 to summarize the inspection purpose, scope and findings. The licensee acknowledged the apparent item of noncompliance (see paragraph 4b.).