U.S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-397/82-07

Docket No. 50-397 License No. CPPR-93 Safeguards Group ______

Licensee: Washington Public Power Supply System
P. O. Box 968
Richland, Washington 99352

Facility Name: Washington Nuclear Project No. 2 (WNP-2)

Inspection at: WNP-2 Site, Benton County, Washington

Inspection conducted: March, 1982

Inspectors: R T Dodds for 4/15/82
R. A. Feil, Senior Resident Inspector Date Signed

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Approved By: R T Dodds 4/15/82
R. T. Dodds, Chief Date Signed
Reactor Construction Projects Section 2

Summary:

Inspection during March, 1982 (Report No. 50-397/82-07)

Areas Inspected: Non-routine, unannounced inspection of licensee and contractor activities to investigate allegations. The inspection involved 114 inspector-hours onsite by the NRC resident inspector.

Results: No items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

Washington Public Power Supply System (WPPSS)

*C. S. Carlisle, Deputy Program Manager
H. A. Crisp, Project Construction Manager
*R. T. Johnson, Project Quality Assurance Manager
*W. G. Keltner, Assistant Project Construction Manager

Bechtel Power Corporation (BPC)

*R. E. Davis, Quality Assurance Engineer
*M. J. Jacobsen, Quality Assurance Manager
*D. R. Johnson, Manager of Quality

Burns and Roe Incorporated (BRI)

M. Giannini, Group Supervisor, Construction Support
R. K. Sanan, Project Engineer, Civil/Structural
H. R. Tuthill, Quality Assurance Engineer

Pittsburgh - Des Moines Steel Company (PDM)

T. Foley, Quality Assurance Manager

WSH/Boecon/Geri (WBG)

M. Hayes, Supervisor Document Review
W. Swita, Quality Engineer

*Denotes those present at monthly management meeting.

The inspector also conferred with other licensee and contractor personnel during the course of the inspection period. The inspector attended several management meetings during the inspection period.

2. Investigation of Allegations

The inspector was informed of 10 allegations regarding construction at WNP-2. Eight allegations were investigated by the inspector. Two allegations are being investigated by the licensee, one of which related to a previously reported 50.55(e) item and the other did not appear to be of Safety significance, none of the allegations investigated by the inspector were substantiated. To be considered substantiated; a finding must be true, in violation of regulatory requirements and must not have been identified as being properly handled by the licensee's quality program.

a. Allegation: The 17 wet well columns are cracking for approximately 4 to 5 feet from the top. The columns were recently sandblasted in preparation for applying a polymer coating. After sandblasting, Column 7 had a sizeable void. The sandblasting apparently cut away grout which had been placed in the void.

Finding: The inspector examined the 17 wet well columns for cracks and voids. The cracks were found to be surface cracks. Compression test records for the concrete in the columns indicate that the ultimate strength of the 90 day concrete cylinders for the 17 columns exceeded the 4000 psi minimum strength requirement.

During sandblasting operation by O. B. Cannon, preparatory to painting, an area approximately 2-inches deep by 1-3/4-inches wide around the circumference of the column 3 was exposed. Grout had been placed in the area. A Nonconformance Report (NCR) has been prepared. The resolution is to remove and grout in one-eight pie sections at a time. The grouted sections will include all but a 6-inch diameter center section of the column. The grout to be used is Embeco 636.

The void was subsequently filled by two placements on March 16 and 24, 1982. Three (3) day compression tests indicate that the grout placed on March 16, 1982, had a strength of 9150 psi and the grout placed on March 24, 1982, had a strength of 7983 psi.

b. Allegation: When the reactor pressure vessel (RPV) was set in place in 1977, it settled on a list from 1-7/16-inch to a maximum of 2-1/16-inches.

Finding: The inspector examined records and interviewed personnel associated with the setting of the RPV. The allegation could not be substantiated. Records indicate that the greatest tilt of the RPV is 0.0048-inches at 45 degrees.

c. Allegation: The two foot slab at the center of containment (501-foot level) has a 12-inch topping without any rebar. The lower 12-inches is reinforced. Is slab built to design?

Finding: The inspector reviewed records and drawings for the two foot slab between elevations 497-feet 6-inches and 499-feet 6-inches. Burns & Roe Drawing S 803, Rev. 18 Reactor Building Radial Beams Section and Details Sh. 3 show that the slab constituents and elevations are as follows:

Elevation	Constituent/Area
497-feet 6-inches	Bottom of Slab
497-feet 7-1/2-inches	Metal Deck
497-feet 9-inches	Lateral and Circular Rebar
499-feet 0-inches	Lateral and Circular Rebar
499-feet 4-inches	Lateral and Circular Rebar
499-feet 6-inches	Top of Slab

This information is supported by records of Cadwelds which were used in replacing the rebar in 2 construction openings which were cut into the slab. Cadweld records show that there are six levels of rebar at the locations indicated above.

d. Allegation: The covering cap above the urethane insulation surrounding the containment is made out of fiberglass cloth placed in layers and secured with epoxy. Fiberglass will rupture with expansion and contaminated water from the (reactor vessel pool) will seep down through the urethane all around the containment.

Finding: The fiberglass laminate, polyester resin and epoxy-based thermo setting adhesive were purchased and used in accordance with the specification. Stress and deflection results were submitted by the contractor. To preclude leakage of any contaminated water, a refueling bellows is installed between the containment wall and the concrete biological shield wall. This is the normal design for a boiling water reactor.

e. Allegation: Should there be a LOCA and the temperature of the urethane insulating material around the containment reach a temperature of 500°F, the material will ignite and give off cyanide gas.

Finding: FSAR Chaper 6, Paragraph 6.2.1.1.3.1. states in part:

The key design parameters and the maximum calculated accident parameters for the pressure suppression containment are as follows:

	Parameter	Design Parameter	Calc. Accident Parameter
a.	Drywell pressure	45 psig	34.7 psig
b.	Drywell Temperature	340°F	328°F

c.	Suppression chamber pressure	45 psig	27.6 psig
d.	Suppression chamber temperature	275°F	220°F

Paragraph 6.2.1.1.3.3.2, Main Steam Line Break, describes the worse case LOCA when the containment temperature approaches 330°F.

The inspector reviewed the certification record for Tenneco P-6273 FRUL polyester polyurethane flexible foam used as insulating material around containment. The record certifies that the service temperature for the material is:

0-275°F	no change in physical properties
276°F-500°F	Softening of foam only, no decomposition. When the foam temperature returns to 275°F or less, foam regains original texture.

f. Allegation: There is only 6-feet of soil over two 12-foot diameter pipes for the intake system where the railroad tracks go to the turbine building. Inadequate protection for pipes considering weight of a locomotive and loaded railroad cars.

Finding: Design drawings show center line of pipes to be at elevation 423-feet. Grade is between 440-feet and 441-feet. The intake pipe is 1/2-inch wall grade "C" carbon steel with a 30 KSI yield stress. The inspector physically measured from the top of the pipe to grade. The distance was 12-feet.

g. Allegation: At least 2500 Cadweld maps are missing. The contractor left with the Cadweld maps and is reported to be in South America. Bechtel is attempting to determine the location of the Cadwelds and is making maps in an attempt to replace the real missing Cadweld maps.

Finding: The inspector reviewed the requirement for and the status of Cadweld maps for WNP-2. The original contract for reinforcing steel mechanical splices (Cadwelds) was given to Bovee and Crail (Contract 206) on October 27, 1972. The specification requirement for the subcontractors documentation about Cadwelds was: (1) ID number; (2) date; (3) location; (4) test record; and (5) qualification record. No requirement for Cadweld maps was specified or required. Livermore Rebar, as subcontractor to Bovee and Crail, performed the Cadwelding until the default of Bovee and Crail. The records for the Cadwelds are available on site.

Regulatory Guide 1.10, Revision 1, Mechanical (Cadweld) Splices in Reinforcing Bars of Category 1 Concrete Structures, dated January 2, 1973, states in part."... The location of all reinforcing bar splices, including replacements for production test samples of mechanical splices, should be shown on the as-built drawings which are kept for the plant lifetime...."

An Engineering Change Order was issued to Bovee and Crail to include the new requirement for Cadweld maps. The contractor did not accept the change order. The responsibility for complying with RG 1.10 was given to Burns and Roe Inc. (BRI). BRI Engineering is presently preparing the Cadweld maps from the original Cadweld reports.

h. Allegation: NCR 213-2074 addresses a problem identified with the four main steam line nozzles for penetrations 18A, 18B, 18C and 18D. These nozzles were found not to be in alignment and as a corrective measure two of them were lengthened by welding in a short "pup". The nozzle believed to lie furthest east has a cant to it and to correct this a mitered "pup" was welded in the opening to direct the spray in alignment with the other three nozzles.

The "pups" are too narrow for the diameter of the pipes and as a result the welding will cause embrittlement. The mitered "pup" is too narrow and should have been twice the length of the 24-inch pipe.

Finding: NCR 213-02074 dated January 6, 1977, states in part."...Per drawing S-795 and S-799, the length of the main steam penetration nozzles XIS-XI8-B, XI8-C and XI8-D was set at 48-feet 1-inches from center line of containment. Contrary to this, these penetrations are from 2 inches to 2-5/8-inches short of this dimension. Per specification 2808-213, Section 13-A, Page 36, Paragraph 4.4.4., the alignment of penetrations shall be plus or minus 1 degree in any direction. Contrary to this, penetration XI8-B is off by 1.1414 degrees...."

The inspector reviewed records which prescribed that end cuts be made from penetrations 18A and 18D to prepare 12-inch lengths to be added to penetrations 18A, 18B, 18C and 18D. NDE records show that these 12-inch pieces were welded into the penetration flued heads to bring the penetration length from 48-feet 1-inches to 48-feet 7-13/16-inches which is the required design length according to Burns and Roe Inc., dawings S-795 and S-799. The inspector was unable to verify the length of the pups, the amount of pipe cut from the penetrations and the certification required for material and installation. In addition the inspector was unable to ascertain the corrective action for the nonconformance of the penetration alignment. Pending verification of installation records, this item is unresolved (50-397/82-07-01)

Items a, c, d, e, and f had been reported to the licensee via their quality awareness HOTLINE program. Their efforts were duplicated by the inspector since the findings were the same.

No items of noncompliance or deviations were identified.

3. Unresolved Items

Unresolved items are matters about which more information is required in order to acertain whether they are acceptable items, items of noncompliance, or deviations. An unresolved item disclosed during the inspection is discussed in Paragraph 2h.

4. Management Meeting

The inspector met with licensee management identified in paragraph 1, on March 31, 1982, to discuss status of his inspection efforts and to receive a status report of principal WPPSS activities.