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

REGION V

Report No. 50-508/79-04
50-509/79-03

Docket No. 50-508
50-509

License No. CPPR-154
CPPR-155

Safeguards Group

Licensee: Washington Public Power Supply System

P. O. Box 468

Richland, Washington 99352

Facility Name: WNP-3 and WNP-5

Inspection at: WNP-3 and WNP-5 Site (Satsop)

Inspection conducted: April 17-20, 1979

Inspectors: D. F. Kirsch
D. F. Kirsch, Reactor Inspector — 5-21-79 Date Signed

T. W. Hutson
T. W. Hutson, Reactor Inspector — 5/21/79 Date Signed

Date Signed

Approved By: R. F. Dodds Jr.
R. C. Haynes, Chief, Project Section, Reactor Construction and Engineering Support Branch — 5/22/79 Date Signed

Summary:

Inspection during period of April 17-20, 1979 (Report Nos. 50-508/79-04 and 50-509/79-03)

Areas Inspected: Routine, unannounced inspection by regional based inspectors of construction activities including: licensee action on previous inspection findings; licensee action on IE Bulletins and Circulars; structural steel and supports installation; structural concrete work and quality records; non-conformance report corrective action; and QA audits. The inspection involved 50 inspector-hours onsite by two NRC inspectors.

Results: Of the six areas inspected no items of noncompliance were identified in five areas; one apparent item of noncompliance was identified in the area of structural concrete (infraction - failure to perform in-process test on grout used for structural purposes - Paragraph 8).

RV Form 219 (2)

DETAILS

1. Individuals Contacted

a. Washington Public Power Supply System (WPPSS)

*F. D. McElwee, Assistant Director - Projects
*W. J. Talbott, Division Manager - WNP 3/5 Project
*C. E. Love, Deputy Division Manager
J. E. Werle, Supervising Project Engineer
*J. C. Lockhart, Project QA Manager
*J. M. Walker, Senior Project Quality Engineer
*R. M. Simons, Senior Project Quality Engineer
*M. L. Jones, Project Engineer
*R. R. Quimby, QA Engineer
*N. Johnson, QA Department Secretary
L. Heiser, Lead Mechanical QA Engineer
C. A. Cal, Senior Project Quality Engineer
K. A. Kirkevold, Electrical Engineer
R. M. Norris, Senior Nuclear Engineer
D. Koski, Civil Engineer
L. F. Adams, Lead Project Quality Engineer
E. L. Stephens, Project Quality Engineer

b. EBASCO Services Inc. (Ebasco)

*D. L. Quamme, Manager of Construction
*J. P. Sluka, Manager of Engineering
*C. B. Tatum, Senior Resident Engineer
*A. M. Cutrona, Assistant QA Manager
E. L. Chatham, Contract Manager
T. E. Cottrell, Resident Engineer - Field
J. R. Sowers, Senior Project Quality Engineer
G. P. Zerbst, QC Engineer
H. L. Barton, Senior Engineer - Field
T. F. Orlin, Lead QA Engineer
R. V. Potter, Contract Engineer
D. LaBreck, Document Control Supervisor
L. Adams, QC Engineer
R. Jabola, QC Engineer

c. Pittsburg Testing Laboratory (PTL)

M. R. Tallent, Jr., Site Manager
D. A. Perry, Assistant Corporate QA Manager
W. K. Barbour, Level II Technician

d. Chicago Bridge and Iron (CBI)

J. W. Cain, Project Welding and QA Superintendent

e. G. F. Atkinson Company (GFA)

D. G. Summers, QC Supervisor

f. Morrison Knudsen Company (M-K)

F. C. Edler, Project Quality Engineer
D. D. Reader, QC Supervisor
J. L. Mawers, QC Inspector

g. State of Washington

*G. Hansen, Engineer (EFSEC)

*Denotes Exit Interview attendees.

2. Project Status

The licensee reported that construction work on Units 3 and 5 was 11.2% and 1.8% complete, respectively, at the time of the inspection. The slip-forming of the Unit 3 biological shield wall was completed and concrete placements for the auxiliary building exterior walls were in progress. Concrete work on Unit 5 involved basemat and shield wall foundation activities.

In response to the inspector's inquiries, the licensee noted that WNP-3/5 does not use or specify for use any large wire size Kulka terminal blocks and that prepurchased Class 1E equipment would be evaluated for the inclusion of these terminal blocks.

3. Site Tour

Upon arrival, the inspectors conducted a site tour to observe the activities of construction, housekeeping and general compliance with requirements of the PSAR and applicable codes and standards. The inspectors noted that there was a considerable amount of construction aid steel laying on the basemats of Unit 3 and Unit 5. Some of this steel was marked with paint to identify it and some was not. The licensee took immediate corrective action to remove any unmarked convenience steel and instruct the applicable contractors on the requirements for marking the steel. The corrective actions appeared effective as the inspector noted later during the inspection that all convenience steel appeared to be properly identified. Also noted during the tour was a significant amount of laitance and loose material on the rebar prior to and after

installation. The inspector questioned the ability of the contractors to remove the material during preplacement cleanup, especially in areas of congested rebar and areas close to the concrete forms. Observation of the preplacement cleanup of two placements verified that the cleanup was effective.

4. Licensee Action on Previously Identified Items of Noncompliance

The licensee response to the following items of noncompliance was examined:

a. (Open) Noncompliance (508/78-08-01): Falsification of personnel qualification records by PTL.

The licensee response was summarized in WPPSS letter Nos. G03-79-346, of February 26, 1979, and G03-79-406, of March 9, 1979.

The inspector examined the surveillance planning matrices and preplanned surveillance checklists for contracts 3240-216 and 263. Minimum frequencies had been established and adhered to. The checklists appeared to be comprehensive.

The licensee established an audit group to examine the adequacy, implementation and effectiveness of contractor QA programs. Audits had been scheduled and conducted using checklists.

The Engineer assigned a laboratory engineer to review all quality activities performed by PTL.

Ebasco procedure ASP-RE-2-4 (Construction Contract Document Submittals) was initiated and contractor quality procedures are reviewed by both quality engineering and quality surveillance. Construction procedures are reviewed by both field engineering and construction supervision personnel.

By implementation of the increased audit/surveillance activities, the licensee noted several deficient conditions at PTL involving personnel eye examination records, personnel qualification and equipment calibration. As a result, the licensee issued a stop work order to PTL on Feburary 13, 1979. On February 17, 1979, the stopwork was partially lifted by the specification of certain personnel and equipment which could be used in concrete testing activities. Licensee action to resolve the deficient conditions noted was continuing and will be examined further during a subsequent inspection. The licensee committed to document additional corrective actions taken with the regard to PTL personnel.

b. (Open) Noncompliance (508/78-09-04): Failure of PTL to submit and Ebasco to review all shop test records.

The licensee response was summarized in WPPSS letter No. G03-79-255, dated February 21, 1979. The licensee committed in his response to the item of noncompliance, to modify PTL procedure QC-DC-1 (Document Control) to require submittal of all onsite test reports within one week of test completion. This commitment was to be implemented by December 18, 1978, with final approval of the revised procedure to be obtained by February 23, 1979. This procedure was still in process of revision.

The inspector examined a number of test reports including: initial set tests IST-9 through 18; concrete tracking records, truck trip tickets and PTL Concrete Field Test Inspection Records for placements ABW-014349, 1b349, 18349, 18362.5 and 20362. The inspector found that PTL was not submitting the test data within the one week as required by Ebasco procedure ASP-RE-2-2. Licensee personnel indicated that this commitment was in the process of implementation.

This item is considered to be a continuing item of noncompliance.

c. (Closed) Noncompliance (508/79-01-05): Failure of WPPSS Engineering and QA to review specification changes.

The licensee response was summarized in WPPSS letter No. G03-79-430, dated March 9, 1979. The inspector examined the corrective action taken and action to preclude recurrence and found the implementation to be as stated. The inspector noted that WPPSS engineering reviews FCNs after they become commercially effective and, as such, provides a control point for proper classification and technical adequacy. The Ebasco Site Support Engineering organization had been delegated the responsibility for the review of drawing changes. QA is now required to review specification changes, procedure revisions and contract changes per ASP-RE-2-23 (Design Change Control). The inspector had no further questions.

d. (Closed) Noncompliance (508/79-01-06): Ebasco failure to implement document control instructions.

The licensee response was summarized in letter No. G03-79-430, dated March 9, 1979. The inspector sampled and examined the detailed corrective action and action to preclude recurrence and noted no further discrepancies.

Ebasco instituted a document transmittal acknowledgement system to indicate update completion for all controlled distributions. The

revised tracking system was implemented and Ebasco was in the process of specifying the tracking system in a document control instruction (DCI-5), which was in the approval process.

The inspector had no further questions on this item.

5. Licensee Action on Previously Identified Followup Items

a. (Closed) PTL test record deficiencies and completeness (508/78-09-05).

PTL form QC-FSTC-1 was revised to include all of the report requirements specified by ASTM-C-403-70 (Initial and Final Set). The inspector examined a number of completed test records for initial set tests, gradation tests, fineness modulus and moisture content of aggregate and noted that the forms appeared to be properly completed, acceptance criteria had been specified, the data had been marked as conforming or nonconforming and the required reviews had been accomplished. The inspector had no further questions.

b. (Closed) Unresolved Item (508/78-09-03): Issuance of procedure to specify contractor document review/approval responsibilities.

Ebasco approved and issued on April 18, 1979, ASP-RE-2-2 (Engineering Review and Processing of 204/209 Contractor Submittal Test Data, Documentation and Inspection Reports). Quality Assurance Instruction 17-1 (Receipt and Review of Quality Verification Records) specifies review requirements for vendor and contractor submitted quality verification records. This item is resolved.

c. (Closed) Unresolved Item (508/79-01-04): Design controls of Ebasco topical report not fully implemented by procedures.

Ebasco procedure ASP-III-7.3, reissued as ASP-RE-2-23 (Design Change Control) was revised to properly implement the requirements of the Ebasco Nuclear Quality Assurance Program Manual procedure No. QA-I-4. Two separate Field Change Request forms had been instituted; one for drawing configuration changes for which QA review and approval is not required and one for specification and drawing note changes for which QA review and approval is required. This item is resolved.

d. (Closed) Unresolved Item (508/79-01-08): Backscatter on CBI radiograph B12C, 0-1 R-1.

Seam B12C, from 0-1 was re-radiographed by CBI and the film was reviewed by the inspector. The reshot was acceptable and no backscatter was indicated on the film. The inspector discussed the problem of backscatter with the personnel responsible for reading the radiographs and determined

that backscatter had been a slight problem earlier in the program and had been corrected by lead screens. The cognizant personnel were aware of the backscatter requirement and were present when the inspector noted the backscatter on B12C, 0-1. The inspector determined that the failure to reject B12C due to backscatter was an isolated instance.

e. (Closed) Followup Item (509/79-02-02): GFA filing of FCRs to facilitate retrieval.

GFA has revised the filing of FCRs and DCNs and now requires filing in alphanumeric order. The inspector selected a drawing and sampled the retrieval capability of the alphanumeric system. All FCRs and DCNs sampled were easily located using the new filing system. This item is closed.

f. (Closed) Followup Item (509/79-02-03): GFA training of QC inspectors on structural concrete drawing requirements.

The records of training sessions for the QC inspectors on structural concrete drawing requirements and drawing familiarization were reviewed. Discussions with QC inspectors indicated that the training had been effective. The inspector has no further questions on this matter.

6. Bulletins and Circulars

The inspector examined WPPSS procedure No. EDI-1.3 (Processing of NRC Inspection and Enforcement Bulletins and Circulars). The procedure specified adequate controls to assure prompt evaluation and response to IE bulletins and circulars.

Bulletins 78-01, 02 and 04: Ebasco letter No. EBWP-78-487, dated May 31, 1978, to the WPPSS project manager stated that the Ebasco review of the above IE bulletins indicated that for WNP-3/5:

(a) GE type CR120A relays are not used or specified for use in safety related systems. (Bulletin 78-01)

(b) Unprotected terminal blocks were not used in systems which must function in the post-accident environment inside containment. (Bulletin 78-02)

(c) Neither NAMCO Model D2400X nor Model EA-170-302 SNAP LOCK switches will be used in any safety related equipment inside containment. (Bulletin 78-04)

Since these bulletins were issued prior to the issuance of the construction permit, the licensee had not responded formally to IE:RV. These bulletins are considered closed.

Bulletin 78-05: The licensee response to the subject bulletin was summarized in WPPSS letter No. G03-78-526, dated June 15, 1978, which stated that GE Model CR105X auxiliary contact mechanisms were not used or planned for use in any safety related systems. This bulletin is closed.

Circular 78-09: WPPSS requested that Ebasco review the subject circular for applicability in letter No. WPEB-78-470. Ebasco responded in letter EBWP-78-802 indicating that the appropriate Ebasco engineering disciplines were made aware of the problem and that Ebasco would ensure that the problem would be rectified prior to awarding any contract in the event that the subject contact was proposed for use in any safety related systems. This circular is closed.

Circular 78-16: The licensee required Ebasco to review the content of the circular for its applicability to WNP-3/5. Ebasco letter No. EBWP-78-1061, dated December 5, 1978, indicated that Limitorque type SMB-0, 1, 2 and 3 valve actuators, equipped with 3600 RPM motors, were used extensively on the containment spray and safety injection systems. This letter further stated that recommendations for equipment modification or special operating procedures and an inservice inspection program are pending the results of Limitorque Corporation's durability studies. It appeared that Ebasco had taken measures to resolve the problem. This circular is closed.

Circular 78-19: WNP-3/5 project personnel reviewed circular 78-19 and found that the safety isolation function of the containment isolation valves would not be bypassed during a containment purge. The licensee further concluded that everything on the system level that is bypassed would be annunciated on an individual basis and that all bypasses would be manually initiated and not compromise the operability of the isolation valve. The licensee further concluded that adequate administrative controls would be facilitated by the provision of isolation valve control and position indication. This circular is closed.

7. Safety Related Structures (Structural Steel and Supports)

Observation of Work and Work Activities

During a site tour on April 17, 1979, the inspectors observed a number of pits, in the Unit 3 auxiliary building basemat, containing anchor bolts. The pits were filled with sediment and water and the protective tape covering on several anchor bolts/nuts had been partially or completely removed or damaged, allowing the water/sediment in the pit to contact the anchor bolts/nuts. The licensee indicated, in response to the inspector's questions, that the bolts were structural steel column anchor bolts.

The inspector found that Ebasco specification No. 3240-216, "Reactor Auxiliary Building Foundation Mat Construction and Performance of Related Work," requires that "After concrete formwork is stripped, anchor bolt threads shall be hand regraphited and rewrapped as necessary and nuts reinstalled...." Although this requirement appeared to have been met initially for the aforementioned column anchor bolts, no provisions had been made by the licensee or his contractor's for maintaining the protective bolt wrapping to prevent deterioration of the components. This item is considered to be unresolved. (508/79-04-01)

8. Structural Concrete

a. Observations of Work and Work Activities

(1) Guy F. Atkinson Company Concreting Activities

The inspector observed concrete placements activities associated with Unit 5 ringwall placement RBF-002, 004 and -351. The observations included preplacement cleanup, completion of preplacement checklists and concrete tracking records, placement of grout, placement of concrete, consolidation, checking of vibrator frequency and coverage by QC personnel. The sampling and testing of fresh concrete by PTL personnel was also observed. The concrete placement was conducted in accordance with QCP-11, Concrete Placement and Finish of Uniform Surfaces, and the testing of fresh concrete performed by PTL appeared to conform to the ASTM procedures. The curing of Unit 5 basemat placement BMS-005-335 was observed and the cure card reviewed. No items of noncompliance or deviations were identified.

(2) Morrison-Knudsen Company Concreting Activities

The concrete activities conducted by M-K for Unit 3 auxiliary building wall placement ABW-004 elevation 335' to 349' were observed. The activities observed included pumping of concrete, placement (lift height, drop and flow), consolidation and reinforcing steel cleanup. The above activities appeared to comply with the requirements in CP-01, Procedure for Forming, Placing, Curing, Finishing, Inspection and Repairing Concrete. No items of noncompliance or deviations were identified.

(3) Testing of Grout

During the observation of placements RBF-002, 004-351 in Unit 5 and ABW-004 in Unit 3 on April 18, 1979, the inspector inquired about testing of grout by the flow cone method. The inspector was informed by PTL that when the grout arrived for placement RBF-002, 004-351, PTL told the Ebasco Concrete Receiving Engineer that PTL had no one qualified to perform the test and no flow cone had been calibrated

due to a recent rescinding of qualifications at PTL by a WPPSS stop work order. The concrete receiving engineer then told PTL to take cubes for RBF-002, 004-351. No flow cone test was run for the six yards of grout used in RBF-002, 004-351 or the one yard of grout used in ABW-004. The inspector noted that Table 2 of Specification No. 3240-415, "Testing and Inspection Requirements for Concrete Materials and Concrete," requires that ordinary grout be tested by the flow cone method (CRD-C79) daily during production or every five cubic yards, whichever is more frequent. The failure to test the grout placed on April 18, 1979, appears to be an item of noncompliance. (509/79-03-01)

b. Review of Quality Records

(1) Guy F. Atkinson Company

The inspector reviewed quality records associated with Unit 3 basemat concrete placements BMS-002-335, BMS-011-335 and Unit 5 basemat placements BMS-004-335, BMS-014-335 and BMS-015-335. The review included the following records: reinforcing steel installation inspection, reinforcing steel placing tolerances, conduit installations and inspection, grounding cable installation and inspection, piping installation and in-place inspection, piping fabrication and connection, embedded metals and structural steel, operations preparatory to placing concrete, preplacement inspection of placing equipment, final inspection before placement, concrete placement card, adverse weather preparations, concrete placement and finish of unformed surfaces, concrete acceptance checklist, concrete placement inspection, concrete consolidation inspection, post placement inspection, concrete curing card, inspection reports, applicable nonconformance reports, reinforcing steel receiving checklists, reinforcing steel receiving form, and four QC inspectors qualifications. The review of Inspection Reports (surveillance reports on in-process work) showed that several reports noted deficient items which were not corrected or followed up at a later date. For example, an inspection report dated January 2, 1979, for BMS-002-335 stated that corrective action on rebar placement would be verified the next morning, yet no inspection report could be found to close the deficient item. An inspection report dated February 9, 1979, for BMS-011-335 documenting a dry pack repair states that PTL was notified to sample the material, but the sample was never taken and the item was apparently not followed up for close out. Discussions with cognizant personnel indicated that this problem had been previously identified and corrective action had been taken to review all inspection reports prior to a particular placement and close out any open or deficient items before the placement. To verify the

corrective action, the inspector reviewed the records and inspection reports for placements BMS-0014-335 and BMS-015-335 in Unit 5. All deficiencies or open items had been corrected during the review of the records for the Unit 5 placements. No items of noncompliance or deviations were identified.

(2) Morrison-Knudsen Company

The following quality records associated with Unit 3 auxiliary building wall concrete placements 3ABW-012-349 and 3ABW-002-349 were reviewed for compliance with applicable procedural documentation requirements: pour package summary index and final review, concrete placement checklist, field fabrication of reinforcing steel, warehouse requisitions, concrete inspection reports, curing reports, curing inspection reports, reinforcing steel inspection reports and postplacement inspection reports. No items of noncompliance or deviations were identified.

(3) PTL

The inspector noted that PTL had, with Ebasco concurrence, removed the gradation sieves from the calibration program reportedly because PTL could not obtain glass calibration beads from the National Bureau of Standards.

The inspector further noted that PTL procedure QC-LT-1, "Laboratory Testing," failed to include specific criteria for the inspection of sieves prior to use. The licensee stated that QC-LT-1 would be modified to include specific sieve inspection criteria. This item is open pending review of the actions taken to assure gradation sieves provide accurate test results. (508/79-04-02)

9. Allegation of Inadequate Corrective Action on an Identified Nonconformance

On April 4, 1979, the inspector received a telephone call from a site employee wherein it was alleged that inadequate corrective action was taken by the licensee in dispositioning a nonconforming condition involving welding on liquid radwaste tanks. These tanks were fabricated onsite by CB&I using welders who had not completed the required welder performance tests. This quality problem had been documented on nonconformance report No. NCR-0198 during execution of the site quality assurance program. The corrective actions specified by the licensee included a requirement to radiograph three percent of the total lengths of welds involved in order to ascertain acceptability of the welding performed by the aforementioned welders. The alleger stated that 10 percent of the welds should have been required to be radiographed. The total length of welds in question was approximately 300 feet.

The liquid radwaste holdup tanks were classified by the licensee as quality group D, non-nuclear safety related. This classification was consistent with the licensee's PSAR and NRC Regulatory Guide 1.26. These tanks were determined by the licensee to not perform a significant safety function in service; consequently, the quality standards of 10 CFR 50, Appendix B were not applicable to their fabrication. Rather, the tanks were required to meet the API-650 commercial standard, or equivalent. The inspector found that the licensee's quality class determination was consistent with the PSAR.

Notwithstanding the minor safety significance of the tanks during service, the inspector examined the corrective actions taken by the licensee. The inspector found that the licensee had radiographed approximately five percent of the total length of welds and had contracted with Southwest Research Institute to evaluate the acceptability of the welds. In addition to reviewing the radiographs, Southwest Research Institute visually examined the welds. The inspector found that Southwest Research Institute had concluded that the tanks were serviceable. The inspector reviewed several radiographs and these radiographs indicated that the welds were sound.

Based on the above, the inspector found that the corrective actions taken by the licensee were adequate to ascertain the serviceability of the tanks. This item is closed.

10. Site Audits

The inspector reviewed the following three audits to ascertain compliance with the licensee's QA program and procedure QAI-18-1 (Audits): WNP-3/5-EQA 263-2, WNP-3/5-EQA 213-3 and WNP-3/5-EQA 219-2. This review included the audit schedule, audit plans, audit checklists and quality finding reports. It appears that the audit schedule is being followed and the audits and any followup actions required are being conducted per QAI-18-1 and the QA program. No items of noncompliance or deviations were identified during this review.

11. Exit Interview

The inspectors met with licensee representatives (denoted in Paragraph 1) at the conclusion of the inspection on April 20, 1979, and summarized the scope and findings of the inspection. The licensee was informed of the matters considered as items of noncompliance.

The inspector expressed his concerns regarding the instance (Paragraph 8.a(3)) wherein the Ebasco field engineer apparently allowed work activities to proceed without obtaining prior written approval of deviations from testing required by the specification. The inspector further noted that the failure to perform grout testing in a manner required by specification was aggravated by the failure to perform an adequate preplacement survey of equipment and personnel required to perform concrete testing activities.