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November 24, 1982
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U. S. Nuclear Regulatory Commission, Region V
Office of Inspection and Enforcement
1450 Maria Lane, Suite 260
Walnut Creek, California 94596-5368

Attention: Mr. D. M. Sternberg
Chief, Reactor Projects Branch No.

Subject: NRC INSPECTION AT WNP-3 IE REPORT NO. 50-508/82-16

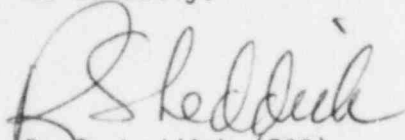
Reference: NRC Letter, dated October 22, 1982, Mr. D. M. Sternberg to
Mr. R. S. Leddick, NRC Inspection at Washington Nuclear
Project No. 3 (WNP-3)

The referenced letter reported the results of the NRC inspections conducted August 2-6 and August 30 - September 3, 1982. Six items of noncompliance and one Deviation were identified.

Attached is the Supply System report detailing corrective/preventive actions taken regarding the items identified in the IE Report.

The Supply System also committed (during the Management Meeting of November 4, 1982) to provide a response regarding design control activities. However, the NRC has granted the Supply System an extension, until December 6, 1982, to this commitment due date.

Should you have any questions or desire further information, please contact me directly.



R. S. Leddick (760)
Program Director WNP-3

JAV/nj

Attachments

cc: Mr. J. Adams - NESCO
Mr. D. Smithpeter - BPA
Ebasco - New York

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VIOLATION A (noncompliance 50-508/82-16/02)

10CFR50, Appendix B, Criterion III states, in part, that: "Measures shall be established to assure that applicable regulatory requirements and the design basis...are correctly translated into specifications, drawings, procedures, and instructions."

Section 17.1.3 of the Quality Assurance Program, as documented in approved PSAR Deviation No. 26-WP, states: "The procurement documents specify that the contractors and vendors of Supply System Quality Class I items and activities develop and implement design and interface control procedures which assure: Translation of regulatory requirements and design bases correctly into design documents."

Contract Specification No. 3240-224, Paragraph 3.1.4.3 states that "The penetration assemblies shall be installed, inspected and tested in accordance with ASME Boiler and Pressure Vessel Code, Section III, Subsection NE for Class MC Components... Penetration-to-containment nozzle joints shall be of a full penetration groove weld configuration and shall be inspected in accordance with ASME Section III, Paragraph NE5200."

The applicable ASME Boiler and Pressure Vessel Code Section III, 1977 Edition including addenda through Summer, 1978, Paragraph NE 6111 requires all vessels constructed under the rules of Subsection NE to be pressure tested in accordance with the rules of Paragraph Nos. NE 6200 or NE 6300. The rules of NE 6300 require a pneumatic pressure test and examination of all joints for leakage during the application of pressure.

Paragraph NE 5211.2 provides for waiver of the pneumatic test on inaccessible welds (defined as not having access to the weld from the outside of the vessel for visual examination) provided, inter alia, that the welds are double butt welded, fully radiographed, and leak tested using a gas medium test.

Contrary to the above requirements: (1) Containment electrical penetration Nos. 102, 104 and 106 were designed and installed without provisions for visual examination during a pneumatic pressure test; (2) the field weld joints were not designed to utilize the provisions of NE 5211.2. The welds are single butt welds and no provisions were made for gas medium testing; and (3) the penetrations were installed and inspected in accordance with Contractor Procedure Nos. FCP-1053 and FQI-10.23 which did not include provisions for performing the code required pneumatic pressure test.

Corrective Steps Taken and Results Achieved

A review was conducted to determine how regulatory requirements were translated into specifications, procedures and instructions for the design and testing of electrical penetrations. This review has disclosed that the requirements of Subsection NE for Class MC components were included in the specifications for procurement and installation of the electrical penetrations. At the time of installation it was the Engineer's position that testing and inspection of the welds which join the penetration assembly to the containment vessel nozzle need

VIOLATION A (noncompliance 50-508/82-16/02) (CONT'D)

Corrective Steps Taken and Results Achieved (Cont'd)

not be tested in accordance with the requirements of Subsection NE. This position was based on a formal code interpretation and generally accepted industry practice. After careful evaluation of alternative testing methods, and considering the intent to conduct the pneumatic pressure test of the vessel with these penetrations installed, the Engineer has determined that testing and inspection of these welds will be conducted in accordance with the requirements of ASME Section III Subsection NE as follows:

- (1) Installation Contract 3240-224 Specification requires the penetration-to-containment nozzle weld to be examined in accordance with NE-5200. Since these welds are inaccessible, they will be treated in accordance with the rules for inaccessible welds as set forth in NE-5211.2 "Examination of Inaccessible Welds". NE-5211.2 makes provisions for waiving visual examination of inaccessible welds during pneumatic testing. The Engineer is developing an examination and test program to assure that the contractor satisfactorily accomplishes all testing per these code requirements.
- (2) Discussions with members of the ASME Subcommittee on Nuclear Power confirm that the Winter 1982 Code Addenda will clarify requirements for inaccessible weld joints. Specifically, it is the intent of the ASME Code that these welds be full penetration and not necessarily double butt welds. Ebasco has requested a formal ASME Code interpretation relative to the "full penetration" in lieu of "double butt" weld. Gas-medium testing is discussed in item (3) below.
- (3) The Code-required pneumatic pressure test of the containment vessel will be performed by Contract 213 (CB&I). Consequently FCP 1053, which is applicable only to Contract 224, did not include provisions for performing this pneumatic pressure test. The 224 Contractor will be responsible for developing a procedure to conduct a leak tightness test utilizing the vacuum box method. This will be performed under the provisions of the Ebasco test program discussed in item (1) above.

Corrective Steps Taken To Avoid Further Items of Noncompliance

There are no corrective steps to prevent recurrence with respect to the electrical penetrations since all the penetrations will be tested as described above.

Supply System evaluation of programmatic areas related to design control will be addressed in a forthcoming (December 6, 1982) letter to the NRC.

Date of Full Compliance

At present, a date of full compliance cannot be determined. It is anticipated that the code interpretation will be received by June 3, 1983. Therefore, a status report of corrective action's taken and date of full compliance will be provided by this date.

VIOLATION B (Noncompliance 50-508/82-16/04)

10CFR50 Appendix B, Criterion III, states, in part, that: "Design changes, including field changes, shall be subject to design control measures commensurate with those applied to the original design and be approved by the organization that performed the original design..."

Section 17.1.3 of the Quality Assurance Program, as documented in approved PSAR Deviation No. 26-WP, states that "Design changes, including field changes, are subject to design control measures commensurate with those applied to the original design and are approved by the organization that performed the original design."

Contrary to the above, quick fix project change proposal No. QFPCP-35Q-06723 was issued by Ebasco Engineering on March 1, 1982 to provide alternate beam connection details for nuclear safety related structural steel. The approved change was provided directly to the field erection contractor and required the contractor to perform design activities and procure alternate beam clips which were later installed. This design change was not forwarded to the original contractor responsible for the design and fabrication of the structural steel (Chicago Bridge and Iron) for subsequent approval, design verification and appropriate drawing changes. As a result, these connection details have not been reviewed by the contractor who performed the original design and do not conform to the detailed structural steel drawings.

Corrective Steps Taken and Results Achieved

As a result of the violation detailed above, an extensive evaluation was performed to determine compliance with established design change procedures. The evaluation disclosed that the NRC inspector was provided with incorrect information. Based on the evaluation results, the Supply System does not consider item B (50-508/82-16/04) a Violation/Noncompliance. The violation noted that the contractor (J. A. Jones) performed design activities (i.e., determined clip length and minimum bend radii for the alternate clips). It has been determined that these design activities were not performed by J. A. Jones. Since design criteria (e.g., loads) was established by Ebasco, the design and review of the structural attachments was solely an Ebasco function.

The CB&I drawing, that detailed the original connection details, received Ebasco Site Support Engineering (ESSE) and Ebasco New York design review. The primary design review for the alternate connection details, as specified on the QFPCP, was also performed by Ebasco prior to implementation as a design modification. As the fabricator/detailer, CB&I provided the original clip length. This same clip length was required for the alternate clip, as noted on the QFPCP (i.e., length determined by fabricator/detailer). Therefore, J. A. Jones did not determine the length of the alternate clip. It should also be noted that J. A. Jones used the AISC manual only for bend tolerance criteria.

VIOLATION B (Noncompliance 50-508/82-16/04) (CONT'D)

Corrective Steps Taken and Results Achieved (Cont'd)

J. A. Jones is contractually obligated to as-built the installed structural steel. Any changes or modifications must be incorporated on a revised set of structural detail drawings. The exact locations of the bent clip detail shall be shown on the as-built drawings with an attached or noted detail showing the clip connection parameters which will also be rolled up on the Ebasco drawing. This action will illustrate conformance to Ebasco and Ebasco approved (detailer) design. The approval of the final submitted as-built drawings will assure compliance to the design and specifications.

Based upon the above discussion, corrective/preventive action and a date of full compliance do not appear to be required.

VIOLATION C (Noncompliance 50-508/82-16/07)

10CFR50 Appendix B, Criterion III states, in part, that: "Measures shall be established to assure that applicable regulatory requirements and the design basis ...are correctly translated into specifications... These measures shall include provisions to assure that appropriate quality standards are specified and included in design documents and that deviations from such standards are controlled."

Section 17.1.3 of the Quality Assurance Program, as documented in approved PSAR Deviation No. 26-WP, states that: "Design changes, including field changes, are subject to design control measures commensurate with those applied to the original design and are approved by the organization that performed the original design."

Ebasco Project Site Procedure No. RE-2-36, Rev. 1, "Initiation and Processing of Project Change Proposals," Attachment 5, specifies that changes affecting nuclear safety related specifications require approval.

Contrary to the above, a requirement for "actual" certified test reports for weld filler metal in Ebasco Contract No. 3240-448 (J. A. Jones, Contract No. 265), structural steel framing was changed by Project Change Proposal Nos. RFI-265-899 (November 24, 1981) and RFI-265-916 (January 14, 1982) to allow the purchase of filler metal with "typical" certified test reports without the change being approved by the ESSE lead discipline engineer and the quality assurance site manager. Subsequently, the contractor purchased and used weld filler metal having typical certifications in safety related structures.

Corrective Steps Taken and Results Achieved

On August 6, 1982, a Nonconformance Report (NCR) was issued by J. A. Jones to address the deficiency. Samples of each heat of weld rod, that had "typical" Certified Material Test Reports (CMTRs), were then tested. All heats tested met AWS Material Specification A5.5. The RFIs that authorized the "typical" CMTRs were voided.

Further corrective action included a thorough review of RFIs by all Engineering disciplines. Approximately 11,864 RFIs were reviewed (including 100% of J. A. Jones RFIs). Fifteen additional instances were found where a Design Change PCP should have been initiated in lieu of an RFI. These fifteen discrepant RFIs were limited to the electrical and civil disciplines only, and have been addressed through approved technical direction (e.g., changed to a PCP) and processed accordingly. It was not necessary to change the engineering direction specified on the discrepant RFIs.

Corrective Steps Taken To Avoid Further Items of Noncompliance

Based on a review of the governing design change control procedures, the review of RFIs/FPMs and discussions with Resident Engineering, it is considered that the subject violation can be attributed to personnel error. Therefore, the following preventive actions have been completed:

VIOLATION C (Noncompliance 50-508/82-16/07) (CONT'D)

Corrective Steps Taken To Avoid Further Items of Noncompliance (Cont'd)

- To emphasize the procedural requirements governing the proper use of the RFI/PCP, Resident Engineering Memos were issued for review by all applicable Civil and Electrical Resident Engineering disciplines.
- A follow-up meeting with all applicable Civil Resident Engineering personnel was conducted to further emphasize the requirements for design changes and clarification. The meeting and attendees were documented by a Resident Engineering Memo.
- To further assure that technical direction is not transmitted via RFI, an amendment to the governing procedure has been issued. This amendment requires the Resident Engineer-Discipline (RE-D) or those personnel reporting directly to the RE-D to review all RFIs within ten working days of issue to the contractor.
- All Engineering disciplines received documented training in the requirements of the governing instruction.
- Additional Supply System actions related to site design change control will be addressed in a forthcoming (December 6, 1982) letter to the NRC.

Date of Full Compliance

The date of full compliance was November 15, 1982.

VIOLATION D (Noncompliance 50-508/82-16/06)

10 CFR 50, Appendix B, Criterion V states, in part that: "Activities affecting quality shall be...accomplished in accordance with...procedures..."

Paragraph 17.1.5 of the Quality Assurance Program as documented in approved PSAR Deviation No. 26-WP, states, in part, that "Contractors and vendors...are required to have written...procedures...which govern their quality related activities..."

J. A. Jones Project Operating Procedure No. POP-N-712, Rev. 2, "Inspection of Incoming Material," Paragraph 6.4 requires inspection of purchased items in accordance with a receiving inspection checklist and the quality assurance inspection record copy of the purchase order. Paragraph 6.5 requires the receiving inspector to verify acceptance of all items on the receiving inspection report. Purchase Order No. 01-449-P-1125 requires a certified letter of compliance which references the material specification and type and states that supplied material complies with all the requirements of the purchase order.

Contrary to the above, 50 lbs. of 5/32-inch, E10018-D2 weld filler material of Heat No. 27121-4565 was received under Purchase Order No. 01-449-P-1125 and issued for use on safety related structures without typical mill test reports, and with a certificate of conformance from an intermediate supplier which did not reference the heat or identification number of the material being certified. The receiving inspection checklist was completed on March 19, 1982, and indicated receipt of typical mill test reports and certificates of compliance for the materials supplied under Purchase Order No. 01-449-P-1125.

Corrective Steps Taken and Results Achieved

On August 5, 1982, J. A. Jones Quality Assurance issued a verbal Stop Work Order that prohibited the issuance of any welding electrode and halted all structural steel welding on Contract 265. Formal written notification was subsequently issued on August 6, 1982.

A Nonconformance Report (NCR) was initiated on August 6, 1982, to document the purchase of welding electrode without requiring "actual" certified material test reports. Disposition of the NCR required a chemical and physical analysis of electrodes in each heat purchased with "typical" Certified Material Test Reports. It should be noted that this analysis included the heat (#27121-4565) identified in the NRC item of noncompliance. Test results disclosed that all electrode heats analyzed were in compliance with the requirements of AWS Material Specification A5.5.

J. A. Jones has requested that the electrode supplier (Thompson Welding Supply, Aberdeen, Washington) provide "actual" Certified Material Test Reports and a Certificate of Compliance identifying the heat/ID numbers for all electrode received on Purchase Order No. 01-449-P-1125.

All receiving records for the welding electrode purchased on P. O. No. 01-449-P-1125 have been annotated with the proper heat numbers to provide required traceability.

VIOLATION D (Noncompliance 50-508/82-16/06) (CONT'D)

Corrective Steps Taken To Avoid Further Items of Noncompliance

The following preventive actions have been taken:

- o J. A. Jones Receiving Inspection personnel have received documented training in the requirements for receipt inspection. Emphasis was placed on the review of documentation received in accordance with purchase order requirements.
- o J. A. Jones Quality Assurance Engineering personnel received documented training in the requirements of the Ebasco structural steel specification that is incorporated in the 265 contract. Emphasis was placed on purchase requirements for welding electrodes.

Date of Full Compliance

Upon receipt and evaluation of the "actual" Certified Material Test Reports and Certificate of Compliance, full compliance will be achieved. Full compliance is anticipated for November 29, 1982.

VIOLATION E (Noncompliance 50-508/82-16/09)

10CFR50, Appendix B, Criterion 10 states, in part, that: "A program for inspection of activities affecting quality shall...executed...to verify conformance with the documented instructions, procedures, and drawings for accomplishing the activity."

Section 17.1.10 of the Quality Assurance Program as documented in approved PSAR Deviation No. 26-WP, states, in part, that: "The procurement documents specify that inspection activities will be performed...in accordance with written procedures, instructions and/or checklists."

J. A. Jones Procedure No. WE-WP-4, Rev. 6, Paragraph 10.1.4.5(e) states, in part, that "Upon inspection of...bolts, nuts, and washers for type, number and condition (as installed) per Attachment E, the inspector shall indicate his acceptance ... Verification of bolt, nut and washer type number and condition shall be by examination of all exposed surfaces in the as-installed position".

Contrary to the above, structural steel connection No. 535 was inspected and accepted on June 21, 1982 and again on July 16, 1982. At the time of the inspection, the connection contained a nut which did not exhibit markings identifying it as a high strength nut in accordance with ASTM, A-325, "High-Strength Bolts for Structural Steel Joints including Suitable Nuts and Plain Hardened Washers." Also, one of the bolt heads in the same connection contained an unacceptable manufacturing defect known as a "forging burst."

Corrective Steps Taken and Results Achieved

Disposition of the discrepant bolts, identified by the NRC Inspector, has been covered by two Nonconformance Reports (NCRs). One NCR addressed the forging burst deficiencies and the other identified the lack of bolt identification markings. The following actions have been initiated to satisfactorily disposition the NCRs:

- A comprehensive sample which included 100% inspection of accessible bolts in completed connections in Reactor Building elevations 395.00' and 425.00'.
- Removal of all rejectable bolts (i.e., bolts with forging bursts/without markings) and replacement with new acceptable bolts.
- Destruction of all rejectable bolts.

All deficiencies, found as a result of the above inspections, and actions taken to correct them are required to be documented on the applicable NCR and forwarded to Ebasco Engineering for evaluation.

Upon completion of the prescribed bolt inspection program, the results will be submitted to Ebasco for evaluation. The engineering evaluation will address the following:

VIOLATION E (Noncompliance 50-508/82-16/09) (CONT'D)

Corrective Steps Taken and Results Achieved (Cont'd)

- The number of inaccessible bolts in any given connection (The connection will be analyzed for stress redistribution in the bolts to verify the structural integrity of the connection).
- Scope of the nonconformance (Based upon the inspection reports submitted, an evaluation will be performed to determine if further inspections are warranted in areas not inspected).

As of October 26, 1982, 8,837 bolts has been inspected. Ten (10) bolts were found with reversed nuts and seventeen (17) were found with rejectable head bursts.

Corrective Steps Taken To Avoid Further Items of Noncompliance

The following preventive actions have been taken:

- Complete inspection of all bolts at the issue stations was conducted to preclude further issuance of defective bolts to the field.
- J. A. Jones Quality Verification personnel have attended documented training sessions on bolt inspection criteria as defined by ASTM A325. Rejectable forging bursts in finished bolts were emphasized.
- J. A. Jones Craft and Quality Verification personnel have attended training on connection assembly and identification marking requirements. Marking requirements in accordance with ASTM A325 and AISC Manual criteria were emphasized.

Date of Full Compliance

Full compliance will be achieved upon completion of the inspections detailed above (including additional inspections if required), subsequent Ebasco evaluations and final nonconformance review. The date of full compliance is scheduled for December 15, 1982.

VIOLATION F (Noncompliance 50-508/82-16/01)

10CFR50 Appendix B, Criterion V states, in part, that: "Activities affecting quality shall be...accomplished in accordance with...procedures..." A required quality affecting activity is defined by Criterion XIII of Appendix B which states, in part, that: "Measures shall be established to control the...storage ...of material and equipment in accordance with work and inspection instructions to prevent damage or deterioration."

Section 17.1.13 of the Quality Assurance Program as documented in approved PSAR Deviation No. 26-WP states, in part, that: "Items delivered to the site are stored, handled, and preserved in accordance with procurement documents and equipment manufacturer's requirements. These functions are performed in accordance with approved procedures and instructions on a scheduled basis and corrective action is taken when required."

Peter Kiewit Sons, Inc., Care and Maintenance Instruction No. PKS-WE-D-118 Rev. 4, Paragraph 2.1 requires construction of a fire-resistant, weathertight, well-ventilated, temperature controlled protective covering supported by a wooden frame to protect the emergency diesel generators until the respective area can provide the necessary protection.

Contrary to the above, on August 2, 1982, rain water was dripping onto diesel generator A-SA. Various portions of the diesel generator, including the diesel to generator coupling and electrical panels associated with the diesel generator, were wet. This diesel generator was placed in its final location prior to July 12, 1982. The floor slab above the diesel generator had not been placed, nor had a protective enclosure been constructed over the diesel generator.

Corrective Steps Taken and Results Achieved

The emergency diesel generator (identified by the NRC Inspector) was placed on its foundation and protected with a "Griffolyn" covering draped over it in lieu of a frame covering, as required by the approved Care and Maintenance Procedure. Upon discovery of inadequacies in the protective covering, a frame cover was erected to protect the unit in accordance with ANSI-N45.2.2 Level B storage requirements. The generator was subsequently inspected and no damage was found.

Corrective Steps Taken To Avoid Further Items of Noncompliance

Investigations disclosed that the violation was an isolated case. Responsible Ebasco personnel have been reinstructed that activities affecting quality shall be performed in accordance with approved procedures.

Date of Full Compliance

All corrective/preventive actions have been completed with a date of full compliance of November 17, 1982.

Deviation (50-508/82-16/03)

Table 1.8-1 of the WNP-3 FSAR states that the WNP-3 project complies with Regulatory Guide 1.29, Rev. 3.

Regulatory Position 2 of Regulatory Guide 1.29, Rev. 3, states, in part, that: "Those portions of structures...whose failure could reduce the functioning of any plant feature...to an unacceptable safety level...should be designed and constructed so that the SSE would not cause such failure.

Regulatory Position 4 of Regulatory Guide 1.29, states, in part, that: "The pertinent quality assurance requirements of Appendix B to 10 CFR Part 50 should be applied to all activities affecting the safety-related functions of those portions of structures...covered under Regulatory Position 2..."

Contrary to the above, a masonry block wall 23 feet 1 inch high was installed approximately 6 feet from nuclear safety related Diesel Generator Control Panel "A". Failure of this wall during a seismic event may disable the "A" diesel generator. The wall was classified as WPPSS Quality Class G and therefore was installed as a non-safety related structure not subject to the requirements of the licensee's quality assurance program required by 10CFR50, Appendix B.

Corrective Steps Taken and Results Achieved

This deviation cannot be resolved at this time because an evaluation required to determine the scope of the problem and resultant corrective actions has not been completed. This evaluation is being performed to determine the adequacy of the masonry wall in question and all similar masonry walls. The evaluation consists of a review of the documentation generated during installation, the acceptability of design criteria and conformance to applicable codes, standards, and specifications. Upon completion of the above evaluation, a comprehensive plan will be developed to correct any discrepancies noted.

Additional actions will be identified and implemented based on the results of the evaluation discussed above. A complete report of these actions, including a date of full compliance, will be provided to your office by December 10, 1982.