U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-508/82-16

Docket No. 50-508 License No. _____ Safeguards Group _____

Licensee: Washington Public Power Supply System

P. O. Box 1223

Elma, Washington 98541

Facility Name: WNP-3

Inspection at: WNP-3 Site (Satsop)

Inspection conducted: August 2-6, and August 30 - September 3, 1982

Inspectors: Dennis P. Haist 10/22/82
D. P. Haist, Reactor Inspector Date Signed

Dennis P. Haist for 10/22/82
A. J. D'Angelo, Reactor Inspector Date Signed

Approved by: R T Dodds 10/22/82
R. T. Dodds, Chief, Reactor Projects Section No. 1 Date Signed
Reactor Projects Branch No. 1

Summary:

Inspection during the period of August 2-6 and August 30 - September 3, 1982 (Report No. 50-508/82-16)

Areas Inspected: Routine, unannounced inspection by a regional-based inspector of construction activities including storage and maintenance of safety related equipment; reactor building structural steel erection and welding; licensee action on IE Bulletins and Circulars; licensee action on previous enforcement, unresolved and followup items; and installation of safety related components. The inspection involved 96 inspection-hours onsite and 4 inspection-hours in office by two NRC inspectors.

Results: Six items of noncompliance and one deviation were identified. (Failure to comply with care and maintenance procedure requirements-Paragraph 2; failure to correctly translate applicable regulatory requirements into design documents-paragraph 3b and 3d; failure to control design changes in accordance with design control measures commensurate with original design-Paragraph 4; failure to properly perform receiving inspection activities-Paragraph 6a; failure to properly control deviations from quality standards-Paragraph 6a; and failure to properly execute inspections-Paragraph 6e.)

DETAILS

1. Persons Contacted

a. Washington Public Power Supply System

+ R. S. Leddick, Program Director
*D. E. Dobson, Project Manager
+*O. E. Trapp, Project Quality Assurance Manager
+*D. Koski, Project Civil Engineer
*J. Vanni, Quality Assurance Engineer
+*D. J. Lagrou, Plant Systems Engineering Supervisor
*G. L. Moore, Electrical Engineer
*K. Kirkevold, Project Engineering Supervisor (Acting)
+*E. L. Stephens, Quality Assurance Engineer
*T. P. Beers, Quality Assurance Engineer
J. A. Puzauskas, Quality Assurance Standards and Performance Supervisor
P. Backes, Mechanical Engineer
C. Butros, Mechanical Engineer
D. Coleman, Licensing Engineer

b. Ebasco Services, Inc. (Ebasco)

+ J. P. Sluka, Engineering Manager
*B. D. Fowler, Deputy Site Manager
*J. Ruimerman, Project Engineer
*V. J. Lovelace, Quality Assurance Audit Supervisor
+*T. E. Cottrell, Senior Resident Engineer
*L. A. Bast, Quality Assurance Engineering Supervisor
+*D. L. Quamme, Project Manager
*B. C. Bennett, Senior Resident Civil Engineer
+*C. M. Kim, Principal Engineer
+ R. M. Roche, Resident Engineer
+ R. DeDamm, Resident Engineer-Mechanical
+ R. Shetty, Lead Discipline Engineer-Civil
+*M. R. Harris, Quality Assurance Engineer
J. George, Quality Assurance Engineer
+ K. Giadrosich, Quality Assurance Engineer
K. Drinkard, Quality Assurance Engineer

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

*G. W. Wickliffe, Project Quality Assurance Manager
*D. G. James, Assistant Project Manager
T. Jeatran, Lead Quality Verification Inspector

G. Fitzgerald, Quality Verification Inspector
R. Varney, Chief Engineer
R. Yarborough, Office Engineer
M. Edgerton, Level II Examiner

d. Peter Kiewit Sons Inc. (PKS)

S. Scott, Quality Control Manager
E. Tosh, Quality Assurance Manager
T. Miller, Equipment Erection Superintendent

*Denotes attendance at exit interview on August 6, 1982.
+Denotes attendance at exit interview on September 3, 1982.

2. Site Tour

The inspectors conducted a tour of Unit 3 on August 2 and 30, 1982 to observe completed work, work in progress, and storage and maintenance of safety-related equipment.

On August 2, 1982 the inspector observed water dripping from structural steel beams above diesel generator No. A-SA onto the diesel generator, diesel-generator coupling, and electrical panels on the generator end of the diesel generator. Electricians had opened these electrical panels and were connecting temporary power to generator heaters while water was dripping into the panels.

Diesel generator A-SA is a quality class 1 component which is to be maintained in accordance with ANSI-N45.2.2-1978 Level B storage requirements. Peter Kiewit Sons procedure no. PKS-WI-D118, Rev. 4 correctly requires a protective enclosure consisting of a fire resistant, weathertight, well ventilated, temperature controlled protective covering supported by a wooden frame to protect the diesel generator unit until the respective area can provide the necessary protection. The floor level above the diesel generator room is covered with metal decking with openings for future floor drain lines and does not provide a waterproof barrier. The contract 251 representative for care and maintenance stated that in addition to rain water, high pressure sprays are used to clean the decking in preparation for concrete placement. The representative also described his attempts to provide the necessary enclosure in accordance with his care and maintenance instructions. He was directed by Ebasco to refrain from installing the enclosure on several occasions. The failure to comply with the care and maintenance instruction is an apparent item of noncompliance with 10 CFR 50, Appendix B, Criterion V, Instructions, Procedures and Drawings (50-508/82-16/01).

3. Licensee Action on Previous Unresolved and Followup Items

a. (Closed) Followup Item (50-508/82-14/01) - Quality Control Monitor Qualifications and Practical Examination Requirements-Contract 251

The inspector had previously questioned the lack of written requirements for qualification and training of the nondestructive examination contractor's quality control monitor and the absence of the requirement of ASNT-TC-1A that during the practical examination, at least 90% of the known indications should be found.

The inspector discussed these issues with the responsible contractor and was satisfied that: (1) the quality control monitor position is normally staffed with a certified Level II individual in the testing disciplines that are applicable; (2) the quality control monitor is provided as a supplemental part of the quality assurance program, above and beyond the periodic quality assurance audit program and the certified nondestructive examiners; (3) ASNT-TC-1A, paragraph 1.4 allows the employer to modify the recommended practices (for practical examinations) to meet his particular needs; (4) ASNT-TC-1A states that 90% of the known indications "should be found". Regulatory Guide 1.58 does not require this wording to be "shall be found"; and (5) the practical examinations that were examined were comprehensive and representative of conditions to be encountered. Based upon the above, this item is considered closed.

b. (Closed) Unresolved Item (50-508/82-12/01) - Leak Testing of Electrical Penetration Field Weld

The inspector had questioned the lack of requirements for leak testing the electrical penetration containment boundary field welds on the contractor's installation travelers and in the installation and inspection procedure Nos. FCP 1053 and FQI 10.23, respectively.

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 NE 5200."

The 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 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 ASME code requirements the electrical penetration containment boundary field weld has not been designed to be accessible for visual examination during a pneumatic pressure test. Also, this joint has not been designed to utilize the provisions of NE 5211.2 since the welds are single butt welds. The failure to correctly translate applicable regulatory requirements into specifications, drawings, procedures, and instructions is considered an apparent item of noncompliance with 10 CFR 50, Appendix B, Criterion III. (50-508/82-16/02).

c. (Closed) Followup Item (50-508/509/81-06/01) - Contract 251 - Pipe Support Frames - Use of Weld Data Sheet.

During a previous inspection it was determined that weld data sheets were not being attached to the work release on pipe support frames. The weld data sheet is required by procedure number PKS-CP-4 to be contained in the work release.

The inspector determined that the contractor had added weld data sheets to all work releases required to contain weld data sheets. The weld data sheets for pipe support frame packages only are blank. There is no procedure requirement that the weld data sheet be completed. Also, the same information on the weld data sheet is also written on other documents in the work release package. Since the same information requested on the weld data sheet is written elsewhere in the package, it is not necessary to document the same information on the weld data sheet. This item is closed.

d. (Open) Followup Item (50-508/82-13/03) - Block Wall Design Adequacy

The Senior Resident Inspector had expressed concern about the seismic adequacy of masonry block wall no. 41 as shown on Ebasco design drawing No. G3395-S1.

The inspector specifically questioned the amount of reinforcement contained within the masonry wall and its ability to withstand a seismic event.

The licensee had conducted a review of the design of the masonry wall in Ebasco's New York Office. The review by the licensee determined that Ebasco had performed a finite-element analysis of the wall and that the stress was within Uniform Building Code (UBC) allowables. The inspector questioned the input assumptions used in the finite element analysis, specifically, the natural frequency of the input assumptions wall and whether or not a sensitivity study had been performed as part of the design verification effort. The natural frequency assumed by Ebasco, as stated by the licensee, was in the rigid range. The rigid range of the WNP-3 response spectra is a very low acceleration. The inspectors requested the calculations to determine the natural frequency of the wall. The calculations were not onsite however the licensee requested justification from Ebasco of the rigid range assumptions. The inspectors will review the justification when available onsite. The licensee was unaware of whether or not Ebasco had performed a sensitivity study. The inspectors requested the licensee to obtain the entire calculation of the masonry wall in order to determine the method used by Ebasco to insure that a sufficient number of elements have been included in the analysis to reach convergence.

The construction of the masonry wall was not performed under the WNP-3 quality Class I program. Ebasco design drawing G3395-S1 shows that the wall is to be constructed as quality Class G. The quality Class G program does not require inspections by quality control personnel to determine that the wall is indeed built in accordance with the design drawing.

The wall as designed must perform two functions.

1) The wall is to act as a fire barrier to protect class 1E electrical equipment against an oil fire.

2) The wall is within close proximity to class 1E electrical equipment and must support itself in all events as defined in the WNP-3 FSAR.

Specific guidance is given in regulatory guide 1.28 and branch technical positions on the classification of structures which house or fall upon nuclear safety related equipment.

The failure to construct masonry wall No. 41 in accordance with the quality class I program is an apparent deviation (50-508/82-16/03).

4. Licensee Action on Previous Enforcement Items

(Closed) Noncompliance (50-508/82-04/02) - Failure to Control Design Change Documents In Accordance With Procedures

The inspector had previously identified failure to follow the provisions of the project change proposal procedure and failure to provide a mechanism to notify contractors of voided project change proposals. The licensee responded to these findings in letter no. G03-82-524 dated May 21, 1982. Corrective actions included notification to contractors of voided project change proposals. Actions to prevent recurrence included revision of the applicable resident engineering procedures to control voided project change proposals and training of individuals responsible for document control. The inspector reviewed the procedure changes and sampled the training records and concluded that these actions had been satisfactorily accomplished. This item is considered closed. See the discussion on field design change control in paragraph 5.

5. Field Design Change Control

An item previously identified by the inspector was failure to identify the affected Chicago Bridge and Iron (CB&I) drawings on quick fix project change proposal (QFPCP) no. 35Q-06723. Reference Paragraph 4. The licensee responded to this finding by stating that QFPCP-35Q-06723 did not change the CB&I drawings but was issued only to provide an acceptable alternate beam connection.

Project change proposal no. 35Q-06723 provided alternate beam connections for nuclear safety related structural steel but provided that the length (and hence, the load carrying capacity) of beam clips was to be determined by the fabricator/detailer per the required loads. Contract specification No. 113, which governs structual steel work by CB&I, paragraph 3.3 states that, "Contractor shall prepare detail drawings including joint details and method of welding per AWS D1.1." Contract specification No. 113 also incorporates, by reference, Ebasco specification No. 448 which states, in paragraph 1.4 that, "Contractor solely responsible for detailing."

In practice, CB&I details structual steel and connections in accordance with the AISC Code, the AWS Code and Ebasco design drawings, which are general and provide load data and minimum requirements for joint design. Since the alternate beam connections specified in QFPCP-35Q-06723 were not sent to the detailer, CB&I, detailing was not performed. The QFPCP was sent to the installation contractor, J. A. Jones, who stated that the AISC manual of steel construction was used to determine the clip length and the minimum bend radii for the alternate clips. J. A.

Jones personnel stated that their determination of the clip design was not checked or verified by anyone in their organization and the detailed drawings were not revised to show the actual location of the alternate beam connections. As a result of this sequence of events, this design change was not reviewed and verified by the originating organization and detailed drawings do not conform to the installed condition. The failure to control design changes in accordance with design control measures commensurate with those applied to the original design and the failure to obtain approval of the design change by the organization that performed the original design is considered an apparent item of noncompliance with 10 CFR 50, Appendix B, Criterion III, Design Control. Noncompliance (50-508/82-16/04).

The inspector examined quick fix project change proposal (QFPCP) No. 35Q-06723 against the following design control procedures:

Procedure No.	Title
PSP-RE-2-36 Rev. 1 Amendment Nos. 1 and 2	Initiation and Processing of Project Change Proposals
E-69, (May 20, 1979)	Design Change Notice/Field Change Request
E-76 (January 20, 1980)	Guidelines for Design Verification
C6-4, Rev. 2	Applicability of Company and Project Procedures to WNP-3/5 Project

Procedure PSP-RE-2-36, paragraph 3.3.1 specifies the requirements for use of a QFPCP to change design. Paragraph 3.3.1.1 states that "The QFPCP may be utilized to request or direct nonsignificant technical changes to design or construction methods."

Ebasco Company Procedure No. E-69 as modified by procedure No. C6-4 establishes the method by which Engineering a) Informs the field of changes to an approved Ebasco drawing, design document or specification having immediate and significant impact on construction work or schedule; (b) promptly advises the field regarding approval of field-proposed changes to minimize construction delays; and (c) provides documentation necessary to satisfy quality assurance requirements.

Paragraph 5.1 of E-69 specifies that Form 612 - "Design Change Notification," shall be used when a response to Field Change Request (Form 631), Major Change category only, is required. Paragraph 5.2.4 specifies that Form 612 may be issued to reflect revision to original design in the Major Change category only as identified by Field form CS-AD-678 (QFPCP) which is initiated by the Field to notify Engineering of proposed design changes.

Paragraph 7.2 specifies that where a QFPCP is checked "Minor Change" the field Senior Resident Engineer may, at his discretion, obtain LDE or ESSE designee concurrence at the completion of the QFPCP or within 48 hours after completion. When concurrence is solicited, the LDE or ESSE designee obligation is to confirm that the change is minor; the method of executing the change is the responsibility of the field.

Paragraph 7.3 specifies that a major change must be brought to the immediate attention of the Site Manager, and if it warrants an FCR, S-TP, or QFPCP, the LDE or ESSE designee will assign a DCN number to identify and document the change on the FCR, S-TP- or QFPCP form.

Ebasco Nuclear Quality Assurance Program Manual, Section QA-I-4, paragraph 7.9 defines major changes to drawings as those which affect safety related aspects of the drawing and requires review and approval by the same individuals or organizations responsible for the original review and affected by the area requiring revision as determined by the Lead Discipline Engineer or his designee. Paragraph 7.10 defines minor changes to drawings as those which do not affect safety related aspects of the drawing. Minor changes do not require review and approval of those organizations reviewing the original drawing. The decision as to whether a change is major or minor must have the concurrence of the Lead Discipline Engineer or his designee.

QFPCP No. 35Q-06723 specified alternate structural steel beam connections for nuclear safety related structural steel which involves changes to safety related aspects of Ebasco drawing no. G-3510-3. Accordingly, this change appears to be a major change as defined by the above referenced documents. The ESSE Lead Discipline Engineer, however, concurred that this was a minor change and the change was implemented. ESSE personnel did not perform design verification on the alternate connections, and a DCN was not initiated.

Following identification of these apparent deficiencies the licensee and Ebasco personnel reviewed the above referenced design control documents and attempted to explain how the requirements of 10 CFR 50 Appendix B Criterion III are being met for design changes that originate in the field. As a result of these discussions and a review of applicable documents the inspector had the following concerns:

(1) Apparent confusion of the meaning of the definition of a "major change"

(2) Apparent lack of prohibition of major design changes by QFPCP in procedure No. PSP-RE-2-36 prior to Amendment No. 3 of March 22, 1982.

This item is considered unresolved pending further review of the field design change process. Unresolved item (50-508/82-16/05).

6. Reactor Building Steel Structures and Supports - Contract 265

a. Weld Material Control

The inspector examined control of weld filler material by welders performing modifications on reactor building column cap plates and examined control and issuance of weld filler material. Attributes examined included storage conditions and control of low hydrogen filler material and bare wire filler material; identification of material heat numbers and segregation within holding ovens; maintenance of proper holding oven temperature and completion of temperature checks; list of qualified welders at issuance station; control of filler metal withdrawal slips; and use of portable holding ovens in the field.

No items of noncompliance or deviations were identified.

The inspector noted the following filler metal heat numbers for filler metal presently in use:

1/8" - E7018 low hydrogen filler material - HT No. 90183D-109
(Purchase order no. 01-449-P-1182)

5/32" - E10018 low hydrogen filler material - HT No. 27121-4565
(Purchase order no. 01-449-P-1125)

The purchasing and receiving records were examined for this material to ascertain compliance with the appropriate AWS specifications and contractor purchasing and receipt requirements. Purchase order No. 01-449-P-1125, which was reviewed by quality assurance on February 4, 1982, required a certifed letter of compliance which references the material specification and type and states that supplied material complies with all the requirements of the purchase order. The actual purchase order and item number was required to be referenced on the certification. 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.

Contrary to these requirements, 50 lbs. of 5/32-inch, E10018-D2 weld filler material of heat No. 27121-4565 was received and issued for use without typical mill test reports, and with a certificate of conformance from an intermediate supplier which did not reference the heat number of material being certified and which in fact represented two different heat numbers of 5/32-inch filler material furnished under the same purchase order.

The receiving inspection checklist was completed on March 19, 1982 and indicated receipt of typical mill test reports and certificates of compliance for materials supplied under purchase order No. P-1125.

The failure to properly perform receiving inspection activities in accordance with established procedures is considered an apparent item of noncompliance with Criterion V of 10 CFR 50, Appendix B, Instructions, Procedures, and Drawings (50-508/82-16/06).

Ebasco Specification No. 3240-448, Structural Steel, Paragraph 4.5(b) requires that all weld filler material have certified test reports based on the tests specified in the applicable filler material specifications. AWS Specification No. A5.1-78, "Specification for Carbon Steel Covered Arc Welding Electrodes" requires (when specified by the purchaser) certification and test results demonstrating compliance of the material supplied with the chemical composition and mechanical, usability, and soundness test requirements of the specification.

Contrary to the requirements of the Ebasco specification, J. A. Jones has procured 1/8-inch E-7018 weld filler material (Heat No. 90183 D-109) in accordance with the requirements of AWS 5.1 under purchase order N. 01-449-P-1182 and has specified manufacturer's typical test reports which reference the electrode classification and heat number for each classification in lieu of the required actual certified test reports. "Typical" certified test reports are manufacturer's certifications that a standard material, if tested, would exhibit the product characteristics shown on the certification document and are not actual test results of the material supplied.

J. A. Jones requested permission to supply "typical" test reports in lieu of actual test reports on Quick Fix Project Change Proposal Nos. RFI-265-899 and 916 dated November 24, 1981 and January 14, 1982, respectively. Permission was given to J. A. Jones to obtain "typical" test reports by the Ebasco Resident Engineering organization in the form of an "interpretation" of Ebasco specification No. 3240-448 that "typical" certified material test reports are sufficient.

Project Site Procedure No. PSP-RE-2-36, Rev. 1 (effective September 21, 1981) "Initiation and Processing of Project Change Proposals," provides instructions on the proper use of the quick fix project change proposals. A quick fix project change proposal may be utilized to request or direct non-significant technical changes to design or construction methods. The proposal must address specific changes to design drawings and specifications and may be either submitted by a contractor or prepared by engineering personnel at the site. Attachment 5 to PSP-RE-2-36 specifies

the technical review requirements for quick fix project change proposals. Changes affecting nuclear safety related specifications require approval by the Ebasco Site Support Engineering (ESSE) lead discipline engineer and the quality assurance site manager. The use of the quick fix project change proposal for responding to contractor requests for information is not addressed in PSP-RE-2-36, Rev. 1 and is to be addressed at a later date. The above described project change proposal Nos. RFI-265-899 and 916 were not approved by the ESSE lead discipline engineer and the quality assurance site manager.

The failure to properly control deviations from quality standards included in design documents is considered an apparent item of noncompliance with Criterion III of 10 CFR 50, Appendix B (50-508/82-16/07).

b. Observation of Welding Activities Within Containment

The inspector observed grinding operations on buttered areas of column cap plate No. CR-14. Several column cap plates in the reactor building are being modified by the addition of A-514 cap plates to allow for mislocated anchor bolt holes. The inspector examined process control sheet No. 865 for sequencing and completion of required welds and nondestructive examinations and examined the buttered areas for dimensions, quality, and proper preheat.

The inspector also examined plug welding operations to fill mislocated structural steel bolt holes on gusset no. 506 N-4 in preparation for drilling of new holes. All operations were being conducted in accordance with the applicable process control sheet No. 1059.

No items of noncompliance or deviations were identified.

c. Visual Examination of Welds

The inspector examined fillet welds which attach Beam 506 GG to the secondary shield wall embedment plate for conformance with the quality requirements of AWS D1.1.

No items of noncompliance or deviations were identified.

d. Observation of Nondestructive Examination Activities

The inspector observed magnetic particle examination of back-gouged plug welds on gusset No. 506-N-4 and a gusset attached to column CR-21. The inspector noted that during the examination of plug welds on column CR-21 gusset, the examiner applied the magnetizing current to the gusset while applying magnetic particles

and removing excess magnetic particles in two directions, 90 degrees apart. The examiner then removed the current and AC yoke, and used his flashlight to examine the vertical surface of the gusset for magnetic particle indications. The inspector questioned this practice and the examiner stated that it was not necessary to maintain AC current during examination of the surface because the particles will remain attached to any indications. The inspector questioned another Level II examiner at another location performing similar examinations with an AC yoke. This examiner stated that the current must be maintained during observation of the surface for indications.

J. A. Jones procedure No. WE-SP-112, Rev. 0, "Magnetic Particle Examination" specifies that inspection shall be by the continuous method, i.e., the magnetizing current shall remain on during the period the magnetic particles are being applied and also while excess particles are being removed. The contractor interprets examination for indications as a separate part of the test at a point in time following removal of excess particles. The inspector interprets the continuous method as requiring examination for indications during removal of the excess particles, particularly when using an AC yoke since sudden interruption of AC current may or may not produce a residual magnetic field, depending upon the point in the current cycle where interruption occurs. The inspector requested a qualification demonstration and the rationale behind the contractor's interpretation of the continuous method. The contractor arranged a qualification demonstration on a test plate with known cracks. The AC yoke provided sufficient residual magnetism during these examinations in the overhead position to qualify the procedure on A-36 structural material. The demonstration satisfactorily resolved the inspectors concerns regarding this technique for this particular application.

No items of noncompliance or deviations were identified.

e. Observation of Bolted Structural Steel Connections

The inspector examined, at random, structural steel bolted connections at the 390 and 425 foot elevations. Attributes examined included identification of bolting materials, inclusion of washer under turned element, bolt thread projection, turn of the nut markings, and acceptance by quality verification inspectors.

The inspector identified a forging burst on a Bethlehem Steel A-325 high strength structural bolt in connection No. 535 (beam 400PA to 500AA) on August 15, 1982. The forging burst extended through the bolt head longitudinally and approximately 1/4-inch into the top crown surface (chamfer circle) radially. ASTM A-325 defines a defective bolt for visual inspection purposes, as any bolt that contains a burst in the flat of the head which extends into the top crown surface of the head (chamfer circle). The connection had received final inspection

on July 16, 1982 including inspection of proper bolting material and identification. The inspector questioned contractor quality assurance personnel regarding inspection of bolts for forging bursts. The contractor produced a nonconformance report No. 265-3884 which documented three bolts having unacceptable forging bursts which were identified in another connection on July 29, 1982. Contractor quality assurance personnel stated that following this finding, connections in an adjacent bay and the bolt storage area were inspected. Eight unacceptable bolts were identified out of 115 bolts in the bolt storage area. Another nonconformance report No. 265-3896 was issued to document the results of this inspection on August 6, 1982.

The inspector questioned the corrective action taken since additional reinspection had not been initiated by the contractor and the recommended NCR disposition was to remove and replace only the identified defective bolts. Ebasco representatives stated that their review of the nonconformance report was incomplete (although the Ebasco Site Support Engineering Lead Civil Engineer had concurred with the contractor's recommended disposition) and that the contractor's determination of the need for corrective action was based in part upon the engineer's evaluation. The actions taken to determine the incidence and resolution of forging bursts in high strength structural bolting will be examined in a subsequent inspection. Followup Item (50-508/82-16/08).

The inspector identified a nut in the same accepted connection No. 535 that did not exhibit markings identifying it as a high strength nut. High strength nuts are identified by three circumferential markings 120 degrees apart or a "2H" marking on the nut. J. A. Jones procedure No. WE-WP-4, Rev. 6, Paragraph 10.1.4.5(e) requires the inspector to inspect bolt, nut, and washer type, number and condition in the "as-installed" condition prior to acceptance which is indicated by the letter "F". For connection 535 this verification was completed and signed off on June 21, 1982 and again on July 16, 1982. The failure to properly execute inspections in accordance with the established inspection program is an apparent item of noncompliance with Criterion X of 10 CFR 50, Appendix B. Noncompliance (50-508/82-16/09).

f. Structural Steel Bolting - Use of Fitup Bolting Material

During inspection of reactor building structural steel activities the inspector became aware of an item of apparent malpractice associated with the use of fitup bolting material for permanent installation. J. A. Jones has been using A-325 high strength structural steel bolts during the initial fitup process to bring members into alignment and to pull mating surfaces together prior to the installation of permanent A-325 bolting. Bolts used for fitup purposes are subject to thread damage and elongation and are painted red to distinguish them from permanent bolting.

J. A. Jones received permission from Ebasco to use A-325 bolts which have been used as fitup bolts as permanent bolts following removal and inspection of the bolts by quality verification personnel. Inspection consisted of running a nut the full length of the threads and checking for visible thread damage. Following inspection, the heads of acceptable bolts were painted blue and could be reinstalled. During construction surveillance by quality verification personnel on July 1, 1982, construction personnel were observed "chasing" the threads on A-325 red painted fit-up bolts with a thread die. This condition was documented on a nonconformance report No. 265-3857. The first redisposition of this nonconformance report stated that thread chasing was unacceptable and specified removal of blue headed bolts installed in connections which were affected by the thread chasing. Action to prevent recurrence consisted of a training session for craft and quality verification personnel on proper control of bolts. No other corrective action was initiated nor was there an investigation to determine the reasons for the thread chasing, the direction given to the crafts, or whether construction personnel knew that thread chasing was an unacceptable practice and not in conformance with procedure requirements. The licensee was not aware of this practice and hence, did not conduct an investigation of the circumstances behind it.

On August 5, 1982 the inspector became aware that contractor quality verification personnel had identified A-325 bolts in structural connections which had been polished or burnished, apparently to remove red and blue paint. Traces of blue paint remained around lettering on the bolt heads. The inspector examined several connections associated with the safety injection tank supports and found three bolts which had been polished and which retained traces of red paint. The structural connection involved was at beam 406AA to Column CR-12 at the 390 foot elevation.

The contractor initiated a stop work order on structural steel activities on August 6, 1982 and also initiated an investigation of this activity. The licensee chose to await the results of the contractor's investigation prior to taking any action. Following completion of the contractor's investigation the licensee initiated an independent investigation of this activity. The results of the licensee's investigation will be examined during a subsequent inspection. Followup Item (50-508/82-16/10).

7. Licensee Action on IE Bulletins and Circulars

The following IE Bulletins and Circulars were reviewed by the inspector to determine the promptness and thoroughness of licensee actions to correct or avoid known or potential deficiencies:

a. Bulletin 79-15, Deep Draft Pump Deficiencies

b. Circular 79-19, Loose Locking Devices on Ingersoll-Rand Pump Impellers

The licensee's response to IE Bulletin 79-15 is documented in Supply System letter No. G03-79-1871 dated October 3, 1979.

The licensee uses the following Ingersoll-Rand Pumps.

	Description	Type	Nuclear Safety Related
1.	Containment Spray Pumps	29APKD-4	yes
2.	Auxiliary Circulating Water Pumps	26APM-2	no
3.	Condensate Collector Tank Pump	10APHC	no
4.	Condensate Transfer Pump	4X7AL	no
5.	Plant Makeup Water Booster Pump	6X12A	no
6.	HVAC Non-essential Services Chilled Water Pumps	4X7AL	no
7.	Low Pressure Safety Injection Pumps	8X20WDF	yes
8.	Circulating Water Pumps	89APH	no

The inspector determined that the containment spray and low pressure safety injections pumps were stored in accordance with manufacturer's requirements.

The impeller locking devices were examined for conformance with the Ingersoll-Rand (IR) care and maintenance instruction.

The impeller locking device used on the containment spray pumps consists of a shaft nut with 3 set screws. The 3 set screws are contained within the shaft nut and when tightened the set screws will grip upon pump shaft. The containment spray pumps were found to be in conformance with IR instructions.

The impeller locking device used on the low pressure safety injection pumps consists of a tab washer with the tab bend over the shaft nut. The tab washer is interlocked with the impeller by a pin extending from the tab washer to the impeller. The low pressure safety injection pumps were found to be in conformance with IR instructions. These items are closed.

8. Safety Related Components - Contract 251

a. Review of Quality Assurance Implementing Procedures

The following procedures were examined for conformance with ANSI N45.2.2-1972 and contract specification no. 3240-251.

1) PKS-CP-6, "Equipment Installation Procedure"
2) PKS-WI-602, "Grouting Work Instruction"
3) PKS-WI-603, "Rotating Equipment Alignment Work Instruction"
4) PKS-WI-606, "Work Instruction for Installation of the HPSI and LPSI Pump"
5) PKS-CP-1, "Care and Maintenance Instruction Procedure"

The above mentioned procedures included such activities as installation, testing and inspection of components. Instruction was included for component lifting. No items of noncompliance or deviations were identified.

b. Review of Quality Records

Storage and maintenance records were examined for conformance with applicable procedures. All maintenance activity performed by the contractor is documented on a Care and Maintenance Record (CMR). This CMR lists the operation performed, frequency and date performed. Records for HPSI, LPSI and containment spray pumps A and B were examined and found to be in conformance with applicable procedures.

c. Observation of Work Activities

Fit-up of the discharge nozzle was observed on HPSI "A" pump. The contractor had the necessary instruments in place to record any nozzle deflections during the fit-up.

In place storage and cleanliness were found to be in conformance with the applicable procedure and ANSI standard.

Equipment supports for LPSI pumps were examined and found to be in conformance with procedures. Grouting activity for LPSI pumps had been completed recently and was found to be in conformance with applicable procedures.

No items of noncompliance or deviations were identified.

9. Unresolved Items

Unresolved items are matters about which more information is required to ascertain whether they are acceptable items, items of noncompliance or deviations. Unresolved items identified during this inspection are discussed in paragraph Nos. 3 and 5.

10. Management Meeting

The inspectors met with the licensee and management personnel denoted in paragraph 1 at the conclusion of the inspections on August 6 and September 3, 1982. The inspectors discussed the scope and findings of the inspection. The findings were acknowledged by the licensee.