NOTICE OF NONCONFORMANCE

AMER Industrial Technologies, Inc.
Wilmington, Delaware

Docket No.: 99901292
Report No.: 96-01

Based on the results of an NRC inspection conducted on January 29 through February 2, 1996, it appears that certain of your activities were not conducted in accordance with NRC requirements.

A. Criterion III, "Design Control" of Appendix B to Part 50 of Title 10 of Code of Federal Regulations, (10 CFR Part 50) requires that measures shall be established to assure that applicable requirements are correctly translated into specifications, drawings, and instructions. Criterion III also requires the establishment of interfaces between participating design organizations for the review, approval, and revision of design documents as well as for checking the adequacy of design.

Paragraph NCA 3260(a) of Section III of the ASME Code states that the Design Report which the Certificate Holder or Designer provides, shall be reviewed by the Owner or his designee.

Paragraph NCA 3554 of Section III of the ASME Code states that any modification of any document used for construction, from the corresponding document used for the design analysis, shall be reconciled with the design report.

Paragraph ND 3362 of Section III of the ASME Code states that flanges designed to standards other than B 16.5 are acceptable provided they have been designed in accordance with the rules of ASME Code, Section III, Appendix XI.

1. Contrary to the above, the Design Report for Job 392 did not contain documentation of the Owner's review. The report also did not include the latest revisions of the construction drawings and, therefore, did not accurately reconcile the design changes with the design report.

2. Contrary to the above, Amer Industrial Technologies, Inc. (AIT) dispositioned Nonconformance Report (NCR) 392-1 "use as is" without demonstrating that the design would meet the applicable ASME Code requirements. (99901292/96-01-02)

B. Criterion VII "Control of Purchased Material, Equipment, and Services" of 10 CFR Part 50, Appendix B states, in part, "Measures shall be established to assure that purchased material, equipment, and services, whether purchased directly or through contractors and subcontractors, conform to the procurement documents."

Enclosure 2

Criterion III "Design Control" of 10 CFR Part 50, Appendix B states, in part, "Measures shall be established for the selection and review for suitability of application of materials, parts, equipment, and processes that are essential to the safety-related functions of the structures, systems, and components."

Paragraph NCA 3867.4 of Section III of the ASME Code states that an ASME Certificate Holder who elects to upgrade unqualified stock material may accept certification of the requirements of the material specification which must be performed during melting and of the heat analysis, providing that the Certificate Holder performs (or subcontracts) all other requirements of the material specification on each piece of the stock material.

1. Contrary to the above, AIT elected to upgrade stock material for Job 392 inlet and outlet pipe nozzles but failed to perform all testing required by the applicable material specification (SA 106, Grade B). Specifically, no documentation was available to indicate that flattening test and hydrostatic test were performed on this material.

2. Contrary to the above, AIT elected to upgrade stock material for SA-249 heat exchanger tubing for Job 442 but failed to provide sufficient documentation to demonstrate that all of the testing required by the material specification was performed on each of the 36 tubes purchased from an unqualified supplier.

3. Contrary to the above, AIT elected to upgrade explosively clad SA 516 Grade 70 heat exchanger tube sheets for Job 331 but failed to demonstrate that this material conformed with the applicable specification requirements. Specifically, laboratory test results showed Charpy v lateral expansion lower than permitted by paragraph NC 2330 of Section III of the ASME Code or by the AIT purchase specification for this material. The file contained no documentation regarding the disposition of the nonconforming condition.

4. Contrary to the above, AIT elected to upgrade SA 516, Grade 70 plate material for Job 331, but failed to provide sufficient documentation to demonstrate that the required testing had been performed on each piece of the stock material. Specifically, three separate pieces of this plate were identified with the same heat code number (M-2501) and documentation in the Job file showed only one sample with this heat code sent for laboratory testing.

5. Contrary to the above, AIT elected to upgrade SA 516, Grade 70 plate material for fuel oil filter body and for inlet and outlet slip-on flanges (both items for Job 392) but failed to perform all testing required by the material specification and to provide sufficient information to the test laboratory to assure that the testing would be performed to the specification requirements. (99901292/96-01-03)

C. Criterion IX "Control of Special Processes" of 10 CFR Part 50, Appendix B states: "Measures shall be established to assure that special processes, including welding, heat treating, and nondestructive testing, are controlled and accomplished by qualified personnel using qualified procedures in accordance with applicable codes, standards, specifications, criteria, and other special requirements."

Paragraph ND-4622.7 states, in part, that welds in certain materials are exempt from mandatory postweld heat treatment provided that a 200 °F minimum heat is maintained during welding. Paragraph ND-2400 states, in part, that required test shall be conducted for each heat of bare electrodes for use with the gas Tungsten arc welding (GTAW) processes.

Paragraph 3.1 of Section 3.0, "Welding/Brazing and Fabrication Requirements," of Bechtel's design specification required, in part, that all welded joints of category D, as defined in paragraph ND-3351, shall be in accordance with subparagraph ND-3352.4. ND-3352.4(b), "Full Penetration Corner Welded Attachments," required, in part, that nozzles shall meet the fabrication requirements of ND-4244(b), "Corner Welded Nozzles and Branch Piping Connections," that required, in part, that when complete joint penetration cannot be verified by visual examination or other means permitted, backing strips or equivalent shall be used with full penetration welds deposited from only one side.

1. Contrary to the above, a minimum preheat temperature of 200 °F was not specified in either the welding procedure specification (WPS) WT-713 or PQR 713 and may not have been performed since none of AITs records document the actual preheat. Additionally, the weld metal qualification test (required by ND-2400 and performed by Amer's supplier for its PO 20537, dated October 27, 1993) did not qualify the SFA-5.17, EM12K filler metal for use in the GTAW process.

2. Contrary to the above, the 0.0185-inch root gap provided by AIT's nozzle penetraltion machining dimensions specified on AIT Drawing 392-2, "Body for Oil Filter - Machining Detail - Item 1A11 and 1A12 (2 units)," Revision 1, dated December 16, 1993, did not ensure that a full penetration weld was achieved. The WPSs specified a root gap for grove welds of 1/16-inch to 3/16-inch (0.0625- to 0.1875-inch). However, the hole size for the nozzle penetration was specified on Drawing 392-2 as 3.535-inches diameter (± 0.002-inch). Given a maximum hole size of 3.537-inches diameter and a 3-inch, schedule 40 pipe with an outside diameter of 3.5-inches, with the pipe nozzle inserted in the hole (forming a category D welded joint), the resulting maximum root gap would be 0.0185-inch, not the 0.0625-inch desired root gap described in the WPS. (99901292/96-01-04)

D. Criterion VII "Control of Purchased Material, Equipment, and Services" of 10 CFR Part 50, Appendix B states, in part, "Measures shall be established to assure that purchased material, equipment, and services, whether purchased directly or through contractors and subcontractors, conform to the procurement documents. These measures shall include provisions, as appropriate, for source evaluation and selection,

provisions, as appropriate, for source evaluation and selection, objective evidence of quality furnished by the contractor or subcontractor ..."

Criterion IV, "Procurement Document Control" of 10 CFR Part 50, Appendix B states, in part, "To the extent necessary, procurement documents shall require contractors or subcontractors to provide a quality assurance program consistent with the pertinent provisions of this appendix."

Bechtel's PO CCDG0767 for 10 filter cartridges (Job 523) invoked the quality requirements of ASME Code, Section III, NCA 4000 for pressure retaining parts and American National Standards Institute (ANSI) standard N45.2 for other parts determined to be safety related. Bechtel's procurement specification also stated that for safety-related non-Code parts AIT shall either provide a QA supplement to control the step-by-step processing of these items, or provide a QA program supplement which specifies that AIT's ASME Code QA program shall be used to process non-Code parts. The performance requirements for these cartridges were specified in Bechtel specification SP-760.

Contrary to the above, AIT procured the filter cartridges from a supplier which had not been audited or otherwise qualified and did not verify by either inspections, tests, or analyses that the design, material, and performance characteristics of the commercial grade cartridges complied with the specification requirements. AIT, without any basis, certified that the filter cartridges complied with ASME Code Section III. (99901292/96-01-05)

E. Criterion XVII, "Quality Assurance Records" of 10 CFR Part 50, Appendix B states, in part, "Sufficient records shall be maintained to furnish evidence of activities affecting quality. The records shall include at least the following: ... inspections, tests ... "

Paragraph NCA 3867.2 of ASME Code, Section III states: "All characteristics required to be reported by the material specifications and by this section shall be verified and the results recorded."

Paragraph 7.7 of AIT's Quality Assurance Manual (QAM) states that "The Hydro Test Record will be prepared by the Project Engineer."

Contrary to the above, AIT could not produce a record of hydrostatic testing of 35 tubes for Job 442. AIT did produce a reconstructed Hydrostatic Test Record of the 35 tubes, dated after completion of Job 442, however, the fabrication sequence and signoffs indicated on Job 442 route sheet do not support the basis of this report. (99901292/96-01-06)

F. Criterion V, "Instructions, Procedures, and Drawings" of 10 CFR Part 50, Appendix B states, in part that "Activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings."

Paragraph 7.3.2 of AIT's QAM states that "Each Route Sheet shall contain the manufacturing, testing, examination and inspections in their proper sequence and ... reference applicable procedure by number and revision level."

Paragraph 7.3.4 of AIT's QAM states that "If work is required as a result of nonconformity, a revised route sheet shall be issued."

1. Contrary to the above, step 14 on the route sheet for Job 442 specified "Roll tubes on LH and RH tubesheets" but failed to identify applicable procedure or any parameters to control the rolling operation. There were no signatures in the sign-off blocks for this operation and no procedure for this operation was in the Job file.

2. Contrary to the above, step 10 on the route sheet for Job 4102 specified "Clean/Prepare for shipment" but failed to identify applicable cleaning procedure and contained no signatures in the sign-off blocks for this operation. Cleaning procedure was not found in the Job file. The customer specification for this item imposed a maximum Chloride limit for the cleaning solution and required the cleaning procedure to be available upon request.

3. Contrary to the above, substantial work including welding, was performed on Job 331 heat exchanger baffle segments to repair a nonconformity without a revised route sheet. The work was apparently performed in accordance with a sketch which was attached to the nonconformance report. This sketch failed to specify the heat code number for material to be used or any nondestructive examination of the repair weld. (99901292/96-01-07)

G. Criterion VII, "Control of Purchased Material, Equipment, and Services" of Appendix B to 10 CFR Part 50 states, in part, "Measures shall be established to assure that purchased material, equipment, and services, whether purchased directly or through contractors and subcontractors, conform to the procurement documents. These measures shall include provisions, as appropriate, for source evaluation and selection, objective evidence of quality furnished by the contractor or subcontractor, inspection at the contractor or subcontractor source and examination of products upon delivery."

Supplement 18S-1, "Supplementary Requirements For Audits," of ASME NQA-1-1989 requires in Section 4, "Performance," that objective evidence shall be examined to the depth necessary to determine if these elements are being implemented effectively. Audit results shall be documented by auditing personnel and shall be reviewed by management having responsibility for the area audited.

Section 10.0 "Audits," of AIT's QAM states, in part, in Paragraph 10.2.3 that elements that have been selected for audit shall be evaluated

against specified requirements. Objective evidence shall be examined to the depth necessary to determine if these elements are being implemented effectively.

Contrary to the above, the inspection identified that the reports for both internal audits and external vendor evaluations did not provide adequate documented objective evidence for the areas reviewed and the activities conducted during these audits. The audit reports also lacked an adequate definition of the audit scope and contained limited overall depth. (99901292/96-01-08)

H. Criterion VII, "Control of Purchased Material, Equipment, and Services" of 10 CFR Part 50, Appendix B states, in part, "Measures shall be established to assure that purchased material, equipment, and services, whether purchased directly or through contractors and subcontractors, conform to the procurement documents. It further states that the effectiveness of the control of quality by contractors and subcontractors shall be assessed at intervals consistent with the importance, complexity, and quantity.

1. Contrary to the above, no provisions existed in AIT's QAM requiring that AIT perform implementation audits or conduct some other activity to verify that ASME certificate holders are effectively implementing their QA program prior to supplying material for use in products to be supplied to nuclear plants by AIT as meeting 10 CFR Part 50, Appendix B.

2. Contrary to the above, the Registered Professional Engineer (RPE) who is currently used by AIT for ASME Code design work was not listed on the current Approved Vendors List as qualified to providing engineering services.

3. Contrary to the above, AIT procured material and services for Job 331 from a vendor (Trinity Industries, Navasota, TX) without verifying the effectiveness of the control of quality at the location where these services were being performed. (99901292/96-01-09)

I. Criterion II, "Quality Assurance Program" of 10 CFR Part 50, Appendix B states, in part, "The program shall provide for indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved and maintained."

Criterion XVII, "Quality Assurance Records" of 10 CFR Part 50, Appendix B states, in part, "Sufficient records shall be maintained to furnish evidence of activities affecting quality. The records shall include at least the following: Operating logs ... and material analyses. The records shall also include closely-related data such as qualifications of personnel, procedures, and equipment."

Section 4.0 "Personnel Training," of the AIT QAM, states, in part, in Paragraph 4.3.7 that the QA Manager has the responsibility to maintain the indoctrination and training records for employees.

Contrary to the above, AIT could not provide the indoctrination and training records for current AIT employees. It also appeared that AIT failed to conduct appropriate training activities of certain personnel required as part of the corrective action to several findings from the two most recent ASME Surveys, conducted in December 1994 and June 1995. (99901292/96-01-10)

Please provide a written statement or explanation to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555, with a copy to the Chief, Special Inspection Branch, Division of Inspection and Support Programs, Office of Nuclear Reactor Regulation, within 30 days of the date of the letter transmitting this Notice of Nonconformance. This reply should be clearly marked as a "Reply to a Notice of Nonconformance" and should include for each nonconformance: (1) the reason for the nonconformance, or if contested, the basis for disputing the nonconformance, (2) the corrective steps that have been taken and the results achieved, (3) the corrective steps that will be taken to avoid further noncompliances, and (4) the date when your corrective action will be completed. Where good cause is shown, consideration will be given to extending the response time.

Dated at Rockville, Maryland
this 21st day of March, 1996