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

Report No. 99900301/79-01 Program No. 51300

Company: Atlas Industrial Manufacturing Company
81 Somerset Place
Clifton, New Jersey 07012

Inspection Conducted: September 10-14, 1979.

Inspectors: J. W. Sutton 10-5-79
J. W. Sutton, Contractor Inspector Date
Components Section I
Vendor Inspection Branch

J. W. Sutton 10-5-79
W. M. McNeill, Contractor Inspector Date
Components Section I
Vendor Inspection Branch

Approved by: D. E. Whitesell 10-11-79
D. E. Whitesell, Chief Date
Components Section I
Vendor Inspection Branch

Summary

Inspection on September 10-14, 1979 (99900301/79-01)

Areas Inspected: Implementation of 10 CFR 50 Appendix B, and applicable codes and standards, including action on previous inspection findings, Review of reported 50:55(e) to assess cause, corrective action, and generic impact of the reported problem, nondestructive examination, equipment calibration, ANI interface, and review of the vendor's activity.

Results: In the six (6) areas inspected, no deviations or unresolved items were identified in four (4) areas. The following was identified in the remaining two (2) areas.

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Deviations: Nondestructive Examination - inspection procedures did not contain the acceptance criteria of ASME subsections NB/NC-4221 on forming, NB/NC-4232 on offset and NB/NC-4426 on reinforcement as required the QA Program section 5 and Criterion V of Appendix B (Notice of Deviation, Item A(1)); Nondestructive Examination procedures did not exist that addressed the ASME Code requirements NB/NC-4231.2 on temporary attachments as required by the QA Program section 5 and Criterion V of Appendix B (Notice of Deviation, Item A(2)); Equipment Calibration - serial numbers of the instruments used for inspections were not recorded as required by the QA Program section 10.1.2 and Criterion V of Appendix B (Notice of Deviation, Item B).

Unresolved Items: Nondestructive Examination - Details Section II, paragraph B.3.b(1)); Nondestructive Examination - Details Section II, paragraph C.3.b.(2)).

DETAILS SECTION I

(Prepared by J. W. Sutton)

A. Persons Contacted

Atlas Industrial Manufacturing Co.

*F. G. DeLorenzo, QA Manager
*R. Mahadeen, Chief Engineer

Lumbermens Mutual Casualty Co.

*H. J. Pollins, ANI Shop Inspector
R. D. Norris, Regional Manager
*V. G. MaGuire, ANI Supervisor

*Denotes those attending exit interview.

B. Action on Previous Inspection Findings

1. (Closed) Deviation (Report No. 78-01) The QA manual did not require that activities affecting quality be accomplished under suitable enviromental conditions. The inspector verified that the QA manual, Sections II and IX had been amended to reflect environmental control requirements.

2. (Closed) Deviation (Report No. 78-01) Unidentified weld wire was stored with acceptable material. The inspector verified that all designated personnel had been reinstructed in the use and storage of weld materials. The storage areas were inspected for compliance, and the weld materials were stored as required by instructions.

C. Nonconformance and Corrective Action

1. Objectives

The objectives of this inspection were to verify that:

a. A system for control of nonconformances and corrective actions has been established and is consistent with NRC regulations, and the QA Program requirements; and

b. The system is properly implemented.

2. Method of Accomplishment

The objectives of this area of the inspection were accomplished by:

a. Review of the QA manual Section 15, Nonconforming Items, and Section 16, Corrective Action.

b. Reviewed the corrective action log.

c. Review of the quarterly meeting activities.

d. Review of ten (10) nonconformance reports to verify appropriate disposition.

e. Inspection of the designated hold and segregation areas.

3. Findings

a. Deviations

None.

b. Unresolved Items

None.

c. The documents reviewed demonstrated that the nonconformances and corrective actions implemented by the vendor are consistent with the regulations and contract commitments.

D. Authorized Nuclear Inspector (ANI) Interface

1. Objectives

The objectives of this area of the inspection were to ascertain whether procedures had been prepared and approved, which describes the system to be implemented for the achievement of interface activities with the ANI, and that the identified activities are consistent with the NRC rules, Code requirements, and the QA Program commitments.

2. Method of Accomplishment

The objectives of this area of the inspection were accomplished as follows:

a. Review of Atlas Industrial Manufacturing Company's QA Manual to ascertain whether the system provides for interface with the ANI and/or the Authorized Inspection Agency (AIA) to review the Design Specification (DS), and provide the inspection services, required by code, of all code items covered by the customer's order and DS.

b. Review of Nonconforming reports to verify that changes in the customer's design specifications (DS) are reviewed with the ANI to inform him of the status of the inspections and tests of the items when it is removed form the manufacturing process.

c. Review of Atlas QA Manual Section 7 to verify that measures have been provided to make available for review by the ANI, Material Certifications and the QC Source and/or Receiving Inspection Reports, and that such reviews are documented.

d. Review of Atlas QA Manual Section 8, to verify that a system has been provided to maintain the identification of materials, and that the identification is transfered when it becomes necessary to divide the material, also, to verify that the ANI is provided the opportunity to verify that the identification of material is properly maintained and documented.

e. Review of Atlas QA Manual Section 9, to ascertain whether measures have been established for the ANI to witness any welding procedure and/or any welder performance qualification tests and to verify that he may request the requalification of any procedure or welder.

f. Review of Atlas QA Manual Section 11, to verify that the program provides for the application of the code stamp only with the authorization of the ANI after acceptable pressure testing, and the certification of the Manufacturer's Data Report, and only in the presence of the ANI.

g. The Daily Log Book maintained by the ANI was reviewed, and it was observed that he has documented his inspection/surveillance activities as required. The inspector's entries were found to be self explanatory.

3. Findings

The ANI activities as documented in his bound log book, and by documents reviewed, supports a finding that the vendor is properly implementing its interface responsibilities with the ANI in a manner consistent with the NRC rules, Code requirements and its QA program commitments.

E. Review of Vendor's Activities

1. Objectives

The objectives of this area of the inspection were:

a. To review the nuclear activity and workload to assess their impact on future NRC inspections.

b. Evaluate the vendor's fabrication/manufacturing equipment and capabilities.

2. Method of Accomplishment

The foregoing objectives were accomplished by observing the manufacturing/fabrication in progress, and discussions with the cognizant vendor personnel.

3. Findings

The vendor has the capability to design, manufacture and test ASME Class 1, 2, 3 and MC Vessels and Piping Systems, Class 1, 2, 3 and MC Vessel parts, appurtenances, component supports, and Class 1, 2, and 3 piping subassemblies and tubular products welded with filler metal. The vendor's main product is fabrication of Heat Exchangers to a maximum diameter of 96 inches, 60 ft. length and 2 inch thickness, maximum vessel weight 35 tons. Welding capabilities include both manual and semi-automatic processes. The vendor subcontracts some design activities. He also subcontracts all NDE with the exception of PT. Heat treating, when required, is subcontracted.

Shipping of completed products is by truck.

The vendor holds valid ASME Certificates of Authorization No. 1317 for "N" stamp and 1318 for "NPT" stamp.

The vendor has fifteen (15) current active nuclear contracts for eighty-four (84) heat exhangers of different sizes.

F. Follow-up of a Reported Inadequacy in Design of a Component Support

1. Background Information

On March 30, 1979, RV notified RIV that Washington Public Power Supply System (WPPSS) had notified RV that Babcock & Wilcox (B&W) had determined that the support system for two (2) letdown coolers, for WNP-1 and WNP-4, as designed and fabricated by Atlas Mfg. Co., was inadequate and had to be modified. The design was reviewed by United Engineers & Constructors, Inc., (UE&C) to provide an evaluation of the potential consequences of the inadequate support system, based on the component loadings. The coolers have been installed in WNP-1 but piping had not been connected. The cooler has not been installed in the WNP-4 unit.

UE&C has redesigned the supports and B&W has proposed a modification of the present system. Change notices and revised drawings have been issued to correct the deficiencies. Since the coolers for WPPSS were part of a multiple component Purchase Order by B&W to Atlas Industrial

Manufacturing Co. and since a routine vendor inspection had been scheduled at the Atlas Plant, which provided the opportunity to gather additional information concerning the generic aspects of this problem.

2. Objectives

The objectives of this inspection were as follows:

a. Determine the cause and generic implication of this problem,

b. Ascertain the corrective action implemented to prevent recurrence, and

c. Ascertain what steps have been, or will be taken, to correct the specific problem.

3. Method of Accomplishment

The foregoing objectives were accomplished as follows:

a. Cause and Generic Implication

The probable cause, scope, and generic aspect of the problem was discussed with the vendor's personnel involved with the problem, and the following information was obtained.

(1) Atlas subcontracted the design and stress analysis responsibilities to Dynatech R/D Company, Cambridge, Massachusetts.

(2) A design analysis for letdown heat Exchange, Dynatech Project No. AIM-2 Report No. 1209 was prepared for Atlas on July 24, 1974. The design analysis covered additional Heat Exchangers for sites other than WPPSS that have been or will be fabricated by Atlas. Units for WNP 1 and 4; Midland; and Bellefonte 1-2, have been shipped and installed at the site. The units for Pebble Springs and North Anna 3 and 4 have been shipped to the site but have not been installed. The units for Davis Besse 3 and 4, and Greene County have not been fabricated. It was determined however, that B&W has notified all utilities involved, of the potential problem.

The following documents were reviewed at Atlas:

(a) Atlas audit of Dynatech.

(b) B&W Specifications -11-1107000004-01 Seismic Design Basis for Auxiliary System Tanks, Vessels, and Heat Exchangers.

(c) B&W design outline -08-1024000007-04 paragraph 2.16.

(d) Atlas drawings Nos. D-3378-5-6

(e) B&W field change order PA83-760708-06

(f) Dynatech design analysis - February 15, 1979 and Addenda 8, July 31, 1979.

(g) B&W Report dated January 30, 1979 Letdown Cooler supports-WPPSS.

(h) Dynatech letters of February 16 and July 31, 1979.

The foregoing documents contained all required information pertaining to the WPPSS 1-4 units.

b. Findings

It was determined from the documents reviewed and discussions held with cognizant personnel that the design problem is generic only to certain B&W Facilities.

The cause of this problem appears to be threefold:

(1) The Torsional moment as calculated by Dynatech, was used to calculate the shell stresses, but was not used to calculate the support stresses. The analyst who originally formed the stress calculations is no longer with Dynatech.

(2) The Engineer who provided the Professional Engineers Certification for Dynatech also directed and aided in the preparation of the Stress Report in question. This is not considered to be an independent review as required by 10 CFR 50.

(3) The fabrication vendor, and the subcontractor for the design were not provided with the necessary interface building support bracket specification, and mounting requirements.

c. Corrective Action to Prevent Recurrence

Dynatech is preparing Design Reports for Atlas. All Design Reports are being independently reviewed and certified by a Registered

Professional Engineer who is not involved in the preparation of the Design Reports.

Atlas has reviewed all Stress Reports/Design Reports received from Dynatech within the past 18 months and has verified that they had been independently reviewed. This item was confirmed by the inspector.

Atlas will conduct an audit of Dynatech prior to the issuance of a new contract to insure that an adequate design control system is being properly implemented and documented.

d. Corrective Action of Problem

B&W has informed Atlas that the interface problem with the Building Supports will be reviewed by them, and corrective action taken as required.

A reanalysis of the Bellefonte and Midland supports are in progress. Corrective action for the remaining locations has been implemented by B&W. Atlas and Dynatech are reviewing the design and stress analysis for all of the locations, using the building support specifications supplied by B&W. Positive and timely corrective action is being taken by all parties involved. The inspector will review final action during a subsequent inspection.

G. Exit Interview

The inspector met with management representatives (denoted in paragraph A) at the conclusion of the inspection. The inspector summarized the scope and findings of the inspection. The management representatives had no comment in response to the items discussed by the inspector.

DETAILS SECTION II

(Prepared by W. M. McNeill)

A. Persons Contacted

A. Abaway, QC Administrator
F. G. DeLorenzo, QC Manager
J. Glendenning, Chief Duftman
H. Holloway, QA Specilist
R. Mahadeen, Chief Engineer
V. Mantano, QC Administrator
R. Pelikan, Shop Leadman
M. Sarno, Machine Shop Foreman

B. Nondestructive Examination

1. Objectives

The objectives of this area of the inspection were to verify that:

a. The manufacturers program for qualification of personnel performing special processes (other than welding) meets regulatory and applicable ASME Code and contract requirements.

b. All personnel performing special processes, including nondestructive examination are being qualified in accordance with the above program and the manufacturers overall QA plan.

c. Nondestructive examination procedures used by the manufacturer meet ASME Code and applicable regulatory and contract requirements.

d. Nondestructive examination is being conducted by properly qualified personnel in accordance with the above procedures and the manufacturers overall QA plan.

2. Method of Accomplishment

The preceding objectives were accomplished by:

a. Review of the Atlas Quality Assurance Program, Revision 2, Section 10.4, titled Nondestructive Examination which established the general requirements for nondestructive examination.

b. Review of the contract for job 3482 and its changes and the Engineering Specifications 679150, Revision 1, and 679153, Revision 1, which established the design requirements.

c. Review of the following procedures which established the specific requirements for nondestructive examinations:

Quality Control Standard 101, Revision 0, with supplement 2 for penetrant testing,

Qaulity Control Standard 106, Revision 2, with supplement 1 for radiographic testing,

Quality Control Standard 108, Revision 0, for magnetic particle testing, and

Quality Control Standard 138, Revision 1, for eddy current testing.

d. Inspection of the travelers, inspection reports, and the hardware on the above job to verify that the above procedures were properly implemented.

e. Inspection of the qualification records of the NDE procedures and personnel, to verify that the above procedures are being properly implemented.

3. Findings

a. Deviations

See Notice of Deviation, Items A(1) and (2).

b. Unresolved Items

(1) Several discrepancies between the approved radiographic technique sheet and the reader sheets were found. These discrepancies will be resolved by Atlas by revision of the technique sheet in question, and the general procedure.

(2) Clarification needed between the requirements of section 10.4.1.2 and Appendix 6. The lack of a clear understanding as to whether a "sign-off" means, the operational status, or the acceptance status, or both, has resulted with inconsistencies between travelers in actual practice. Atlas has agreed to resolve this by revision of the traveler format and the QA Program.

c. Comments

(1) An inspection procedure was found (Quality Standard #140) which did address such code requirements as NB or NC-4427 on Shape and Size of Fillet Welds." This procedure did

not address other ASME Code requirements such as those cited in the Notice of Deviation, Item A.1. In order to assure that the hardware complies with the code, the inspection procedures should address all of the code requirements and provide evidence of compliance.

(2) No procedure was available which addresses the ASME Code requirements concerning temporary attachments, although the ASME Code requirements cover both welding and inspection activities.

C. Equipment Calibration

1. Objectives

The objectives of this area of the inspection were to verify that:

a. A system has been established and is maintained to assure that tools, gages, instruments and other measuring devices used in activities affecting quality are properly controlled, calibrated and adjusted at specified periods to maintain accuracy within specified limits.

b. The system has been adequately documented with approved procedures and that these procedures are being implemented.

2. Method of Accomplishment

The preceding objectives were accomplished by:

a. Review of the Atlas Quality Assurance Program, Revision 2, Section 12.0, titled Control of Measuring and Test Equipment, which established the general requirements for calibration.

b. Review of Instrument Calibration Procedure, Quality Control Standard 112, Revision 2, which established the specific requirements of calibration.

c. Inspection of the travelers on job 3482, the drawings D6244-5, Revision 5, D62445-1, Revision 1, and D6802, Revision 0, the tools used to measure hardware characteristics, and verified the above to be properly implemented.

d. Inspection of the calibration records of the tools used in the shop and verified the above procedures were properly implemented.

3. Findings

a. Deviation

See Notice of Deviation, Item B.

b. Unresolved Items

None.

c. Comments

The recording of the instrument serial number is necessary information in order to identify the extent of corrective action when a instrument is found to be out of calibration.