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

Report No. 99900039/80-02 Program No. 51300

Company: Rhine-Schelde-Verolme Zware Apparatenbouw b.v.
Heijplaatstraat 4, P. O. Box 221
Rotterdam, THE NETHERLANDS

Inspection Conducted: October 27-31, 1980

Inspectors: D. E. Foster for 12/2/80
L. E. Ellershaw, Contractor Inspector Date
Components Section II
Vendor Inspection Branch

D. E. Foster for 12/2/80
I. Barnes, Chief Date
Components Section II
Vendor Inspection Branch

Approved by: D. E. Foster for 12/2/80
I. Barnes, Chief Date
Components Section II
Vendor Inspection Branch

Summary

Inspection on October 27-31, 1980 (99900039/80-02)

Areas Inspected: Implementation of 10 CFR 50, Appendix B, criteria and applicable codes and standards: including action on previous inspection findings; manufacturing process control; testing of completed products; material identification and control; welding material control; handling, storage and shipping and review of special welding applications. The inspection involved a total of fifty-eight (58) inspector-hours on site by two NRC inspectors.

Results: In the seven (7) areas inspected; no deviations or unresolved items were identified in five (5) areas, with the following deviations being identified in the remaining areas:

Deviations: Manufacturing Process Control - Verification of lifting power of yoke used in magnetic particle examination was not performed as required by process specification PS-23.21

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(Notice of Deviation, Item A.). Handling, Storage and Shipping - Required inspections of lifting equipment were not performed in accordance with Quality Procedure No. 9.10.01(E) (Notice of Deviation, Item B.).

Other Significant Items: Final documentation assembly was in progress during the inspection for the Black Fox Unit 1 reactor vessel, with shipment to the U.S.A. for fitting of internals at Chicago Bridge and Iron Nuclear (CBIN), Memphis, expected by January, 1981.

DETAILS SECTION I

(Prepared by L. E. Ellershaw)

A. Persons Contacted

P. J. Bomers - QA Systems Engineer
P. C. DeRuiter - Manager Production
L. R. Dykstra - Authorized Nuclear Inspector, Hartford Steam Boiler Inspection and Insurance Company
E. A. Lathouwers - QA Engineer
M. Lodder - Manager, Quality Assurance
S. A. Hulshoff - QA Systems Engineer
B. J. A. Sluis - Managing Director
W. N. Van de Poll - Executive Secretary
G. J. Van der Vlies - Manager, Projects
C. P. J. Vester - Shop QA & Weld Engineer

B. Action on Previous Inspection Findings

1. (Closed) Item E (Report No. 80-01): This item dealt with calibrations not being performed and in some cases where it was, it was not recorded in the calibration records.

   RSV-A implemented their committed corrective action in that a review of all measuring and test equipment occurred, to assure that the equipment was in an acceptable calibration status. Review of equipment and calibration records showed all equipment to be in an acceptable calibration status.

C. Manufacturing Process Control

1. Objectives

   The objectives of this area of the inspection were to verify that RSV-A had implemented the requirements for the control of manufacturing processes in accordance with the QA Manual and applicable NRC and ASME Code requirements.

2. Method of Accomplishment

   The preceding objectives were accomplished by:

   a. Review of QA Manual Chapter 6, "Process Control and Material Identification."

   b. Review of Master Travelers relative to Black Fox Unit 1 reactor vessel.

c. Observation of Magnetic Particle examination (MT) being performed on the Closure Head.

d. Review of welding and postweld heat treatment records for reactor vessel, unit 1.

e. Review of Procedure PS-23.21, revision 1, "Magnetic Particle Examination of Forgings."

f. Discussions with cognizant personnel.

3. Findings

a. Deviation From Commitment

Notice of Deviation, Item A.

Master traveler No. 30822-50000-0110-010 for Closure Head, Drawing PS-29.02, Sequence T-2 stated, "MT places of removed lifting lugs" per specification 23.21, revision 1.

PS 23.21 requires verification of the lifting power of the yoke at least every shift or change of personnel. Observation of the MT revealed the verification did not take place.

b. Unresolved Item

None.

D. Testing of Completed Products

1. Objectives

The objectives of this area of the inspection were to verify that RSV-A had implemented the requirements for the control of hydrotesting a reactor vessel in accordance with the QA Manual and applicable NRC and ASME Code requirements.

2. Method of Accomplishment

The preceding objectives were accomplished by:

a. Review of QA Manual Chapter 6, "Process Control and Material Identification."

b. Review of Procedure PS-29.02, "Hydrotest", revision 3.

c. Review of Hydrostatic Test Report No. 30822-0104-000-0390 for Black Fox reactor vessel, Unit 1.

d. Review of pressure gages used and their calibration records, including Calibration Tests Certificates.

e. Discussions with cognizant personnel.

3. Findings

a. Deviation From Commitments

None.

b. Unresolved Item

None.

E. Material Identification and Control

1. Objectives

The objectives of this area of the inspection were to verify that RSV-A had implemented the requirements for the control and identification of material in accordance with the QA Manual and applicable NRC and ASME Code requirements.

2. Method of Accomplishment

The preceding objectives were accomplished by:

a. Review of QA Manual Chapter 6, "Process Control and Material Identification."

b. Observation of studs, nuts and washers for the closure head and review of certified material test reports.

c. Verification of physical and chemical properties of the studs, nuts and washers.

d. Discussions with cognizant personnel

3. Findings

a. Deviation From Commitment

None.

b. Unresolved Item

None.

F. Welding Material Control

1. Objectives

The objectives of this area of the inspection were to verify that RSV-A had implemented the requirements for the control of welding materials in accordance with the QA Manual and applicable NRC and ASME Code requirements.

2. Method of Accomplishment

The preceding objectives were accomplished by:

a. Review of QA Manual Chapter 8.0, "Construction Processes."

b. Review of Weld Record Report No. 30823-65000-0102-000 relative to the Circumferential Seam, Items 006, 007, and 008.

c. Review of Welding Procedure Specification 32.21 revision 2.

d. Review test reports of the wire/flux combinations used in the circumferential seams.

e. Review welding material certificates for the wire used in welding temporary attachments.

f. Discussions with cognizant personnel.

g. Observation of welding material storage areas and holding ovens

3. Findings

a. Deviation From Commitment

None.

b. Unresolved Item

None.

G. Exit Meeting

An exit meeting was held on October 31, 1980, with the management and Authorized Inspection Agency representatives denoted below:

M. Lodder, Manager, Quality Assurance
G. J. Van der Vlies, Manager, Projects
W. N. Van de Poll, Executive Secretary

P. C. De Ruiter, Manager, Production
C. P. J. Vester, Shop QA and Welding Engineer
S. A. Hulshoff, QA Systems Engineer
L. R. Dykstra, Authorized Nuclear Inspector, Hartford Steam Boiler Inspection and Insurance Company

The inspectors summarized the scope and findings of the inspection. Management was also informed, that as a result of position change, responsibility for performing the expected two remaining inspections at RSV-A had been assigned to the individual acting as lead inspector during this inspection. Management acknowledged the statements of the inspectors with respect to the findings as presented to them and affirmed the commitment of RSV-A to the quality assurance program.

DETAILS SECTION II

(Prepared by I. Barnes)

A. Persons Contacted

B. J. A. Sluis, Managing Director
M. Lodder, Manager, Quality Assurance
G. J. Van der Vlies, Manager Projects
S. A. Hulshoff, QA Systems Engineer
P. J. Bomers, Safety Officer
A. Waasdorp, QA Project Engineer
F. Smeets, QA Project Engineer
E. Lathouwers, QA Engineer
C. P. J. Vester, Shop QA and Welding Engineer
N. C. Theis, Authorized Nuclear Inspector Specialist, Hartford Steam Boiler Inspection and Insurance Company
L. R. Dykstra, Authorized Nuclear Inspector, Hartford Steam Boiler Inspection and Insurance Company

B. Action on Previous Inspection Findings

1. (Open) Deviation (Item A, Notice of Deviation, Inspection Report No. 80-01): Approval and use of Thyssen Draht A. G. as a welding material supplier, without accomplishment of the follow-up actions required by the results of a June 26, 1979, survey.

   The inspector verified that corrective action commitments had been implemented with respect to performance of a follow-up audit, removal of Thyssen Draht A. G. from the Approved Nuclear Vendors List and revision of Quality Procedure No. 9.14.02(E) to limit conditional approval of vendors to a two month maximum period. Review of the manufacturer's quality program also indicated that each coil of wire was checked by chemical analysis to assure compliance of the product with the applicable material specification. Records of these analyses had not, however, been obtained by Rhine-Schelde-Verolme Zware Apparatenbouw b.v. (RSV-A) for the order placed with Thyssen Draht A. G., precluding direct verification of product compliance with NCA 3867.4(e) in Section III of the ASME Code. This item will remain open pending the obtaining of these records and review by the inspector.

2. (Closed) Deviation (Item B, Notice of Deviation, Inspection Report No. 80-01): Welding of thermocouple clamp temporary attachments was not performed in accordance with corrective action commitments, in respect to stipulation of the applicable welding procedure specification to be used on the Master Traveler and preparation of welding records.

The inspector verified that a Nonconformity Report had been issued and work appropriately accomplished to remove all attachment welding material and heat affected zones. The inspector further confirmed that a designee had been appointed to represent the QA Manager during his absences from the facility and also verified that a training course had been conducted on QA program requirements with the staff designated for completion of nuclear work.

3. (Closed) Deviation (Item C, Notice of Deviation, Inspection Report No. 80-01): Failure to prepare Nonconformity Reports relative to identified deviations from heat treatment process specification requirements.

   The inspector verified that an extrapolation of heat treatment temperature data had been performed to provide assurance of the adequacy of attained temperatures at the vessel I.D. The committed steps to preclude recurrence were verified as identified in B.2. above.

4. (Closed) Deviation (Item C, Notice of Deviation, Inspection Report No. 80-01): Use of incompatible welding material for attachment of thermocouple clamps to vessel cladding and failure to postweld heat treat O.D. thermocouple clamp attachments welds at the temperature range required by NB-4600.

   The inspector verified that a Nonconformity Report had been issued relative to the use of incompatible welding material and work appropriately accomplished to remove the material. It was also established as identified in B.2. above, that a Nonconformity Report had been issued and work accomplished to remove O.D. attachment welding material and heat affected zones. The committed steps to preclude recurrence were verified as identified in B.2 above.

C. Handling, Storage and Shipping

1. Objectives

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

   a. Procedures had been established for handling, interim storage, packaging and shipment of parts and components and that these procedures were consistent with applicable regulatory, code and contract requirements.

   b. The above procedures had been effectively implemented.

2. Method of Accomplishment

   The preceding objectives were accomplished by:

   a. Review of Chapter 15, Revision 8, of the QA Manual, "Handling, Shipping and Storage."

   b. Review of process specification PS-10.01, Revision 1, "Surface preparation, Cleaning, Preserving, and Shipping of Reactor Pressure Vessel and of Reactor Pressure Vessel Head."

c. Review of Quality Procedure No. 9.15.01(E), Revision 3, "Procedure for the periodic inspection of hoisting equipment."

d. Examination of the master traveler applicable to preservation of the Black Box Unit 1 closure head for shipment, 30822-500000-0124-000.

e. Visual examination of saddles to be used in shipment of the Black Fox Unit 1 reactor vessel relative to fabrication drawing requirements.

f. Visual examination of 200 and 300 tonne hooks, cable slings and lifting yokes (sleuting) on the Figee - Haarlem crane.

g. Examination of available inspection records for the items referenced in f. above.

3. Findings

a. Deviation from Commitment

See Notice of Deviation, Item B.

b. Unresolved Items

None.

c. Comments

Inspection of this subject revealed that yoke magnetic particle examinations of crane hooks were being performed on a four month cycle, although not specifically documented as a QA program requirement. Review of magnetic particle examination reports for hooks did not indicate use of any specific examination procedure for these examinations, precluding verification of the basis used for acceptance or rejection.

D. Review of Special Welding Applications

1. Objective

The objective of this area of the inspection was to determine if special welding applications were qualified and performed in accordance with the RSV-A QA program and the requirements of Sections III and IX of the ASME Code.

2. Method of Accomplishment

The preceding objective was accomplished by:

a. Review of Chapter 8, Sub-Chapter 8.1, Revision 9, of the QA Manual, "Welding."

b. Review of the Master Traveler applicable to machining and buttering of penetrations in the lower head of the Black Fox Unit 1 reactor vessel.

c. Examination of supporting welding, liquid penetrant examination and dimensional inspection records.

d. Review of welding procedure specification PS 37-21, Revision 2, used for cladding (buttering) the J-grooves.

e. Verification from welding records of compliance with process specification requirements with respect to welding materials and parameters employed.

f. Examination of performance qualification records of three (3) welders used for the buttering operations, with respect to Section III and Section IX of the ASME Code requirements.

3. Findings

a. Deviation from Commitment

None.

b. Unresolved Items

None.

c. Items Requiring Followup Inspection

Review of the Master Traveler for the Black Fox Unit 1 bottom head assembly indicated no inspection sequence for verification of dimensional acceptability of pre-clad penetrations only inspection after machining of the clad penetrations. In response to questions from the inspector, relating to how RSV-A could verify the adequacy of clad thickness after machining if the dimensions prior to cladding were not checked, a memorandum from the prior QA Shop Engineer was located, which indicated dimensional inspection was performed prior to cladding and after machining of the clad penetrations. This memorandum indicated all penetration dimensions were acceptable.

It was also noted that there were certain date inconsistencies in the records with respect to cladding and performance of post-weld heat treatment. Pre-cladding of J-grooves was signed off on October 26, 1978, with performance of a postweld heat treatment being indicated as being performed on October 23, 1978. Insufficient time was remaining in the inspection, after identification of these items, to fully verify the adequacy of process controls for these operations. These items will therefore be further reviewed during a future inspection at RSV-A.