

November 9, 2000

Mr. Dennis Smith
Vice President and General Manager
Hayward Tyler, Inc.
46 Roosevelt Hwy.
Colchester, VT 05446

SUBJECT: NRC INSPECTION REPORT 99900345/00-201

Dear Mr. Smith:

This letter addresses the inspection of your facility at Colchester, Vermont, conducted by Bill Rogers of this office on October 3 through October 5, 2000. Mr. Rogers held an exit meeting and discussed his conclusions with you and other persons on your staff at the conclusion of the inspection.

Areas examined during the inspection are discussed in the enclosed report. This inspection consisted of an examination of procedures and representative records, interviews with personnel, and observations by the inspector.

During this inspection, it was found that there was a conflict in your organizational structure in that the Quality Assurance Manager had responsibility for, and was performing, a production function; your Approved Vendor List (AVL) was not being adequately maintained or used; the audits of two vendors had not been adequately documented; a Hayward Tyler, Inc., procedure allowed vendors to be placed on the AVL as safety-related suppliers based on the vendor holding an American Society of Mechanical Engineers (ASME) certificate or an International Standards Organization (ISO) 9002 accreditation without an implementation review; and numerous measurement tools and standards had been available for use past their calibration due dates.

Mr. Smith

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November 9, 2000

Please provide us within 30 days from the date of this letter a written statement in accordance with the instructions specified in the enclosed Notice of Nonconformance. We will consider extending the response time if you can show good cause for us to do so.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be placed in the NRC Public Document Room (PDR).

Sincerely,

/RA/

Theodore R. Quay, Chief
IQMB
Division of Inspection Program Management
Office of Nuclear Reactor Regulation

Docket No. 99900345

Enclosures: (1) Notice of Nonconformance
(2) Inspection Report 99900345/00-201

Mr. Smith

- 2 -

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Docket No. 99900345

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(2) Inspection Report 99900345/00-201

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NOTICE OF NONCONFORMANCE

Hayward Tyler, Inc.
Colchester, Vermont

Docket No. 99900345

Based on the results of an inspection conducted on October 3 through October 5, 2000, it appears that certain of your activities were not conducted in accordance with NRC requirements.

- A. Criterion I, "Organization," of 10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," requires, in part, that "Such persons and organizations performing quality assurance functions shall report to a management level such that this required authority and organizational freedom, including sufficient independence from cost and schedule when opposed to safety considerations, are provided."

Contrary to the above, the Hayward Tyler, Inc., (HTI) Quality Assurance Manual (QAM), Edition 5, Revision 0, dated February 24, 1999, listed a position, Contract Administrator, whose duties were clearly related to production and who reported to the Quality Assurance (QA) Manager. In addition, the position was vacant and these duties were being performed by the QA Manager.

(Nonconformance 99900345/00-201-01)

- B. Criterion VII, "Control of Purchased Material, Equipment, and Services," of 10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," requires, in part, that "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. The effectiveness of the control of quality by contractors and subcontractors shall be assessed by the applicant or designee at intervals consistent with the importance, complexity, and quantity of the product of service."

The HTI QAM, Section 4, "Procurement Document Control," states, in part, "Safety Related Item (S) - vendors will be qualified in accordance with internal procedures and the frequency of audit will not exceed three (3) years." The HTI QAM, Section 7, "Control of Purchased Materials, Items, and Services," states, in part, "Vendors qualified by Hayward Tyler, Inc., survey are advised by letter that they have been placed on the Approved Vendor List" and "Purchase orders for N and S [safety-related] items will only be placed with vendors listed on the Approved Vendor List (AVL)."

Contrary to the above, the HTI AVL was not being updated and maintained properly in order to control purchase of safety-related material, HTI had made safety-related purchases from companies who had not been audited within the required period of time as indicated on the HTI AVL, and HTI had made safety-related purchases from companies who were not listed on the HTI AVL and whose audit reports had not been completed.

(Nonconformance 99900345/00-201-02)

Enclosure 1

- C. Criterion VII, "Control of Purchased Material, Equipment, and Services," of 10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," requires, in part, that "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. The effectiveness of the control of quality by contractors and subcontractors shall be assessed by the applicant or designee at intervals consistent with the importance, complexity, and quantity of the product of service."

Contrary to the above, HTI Document No. 01-019-204, "Quality Assurance Requirements for Safety-Related Items," Revision A, dated August 13, 1993, which established the program requirements for vendors producing items which HTI could purchase as safety-related, stated the following:

Items are to be produced [by vendors] under a Quality Assurance Program that: (A) Is certified by [American Society of Mechanical Engineers] ASME as a Quality System Certification holder; or (B) Is registered to ISO 9002 by an organization accredited by the R.A.B.; or (C) Is approved by Hayward Tyler, Inc. Any changes to the Quality Assurance program must be approved in writing by Hayward Tyler, Inc., prior to acceptance of any work. HTI management indicated that the HTI QA program allowed HTI to purchase and supply safety-related items based solely on an ASME certification or an ISO 9002 accreditation without performing an audit of the vendor to verify implementation of the program.

In addition, HTI had implemented this practice by qualifying Dubose National Energy (Dubose) for safety-related purchases on the basis of the Dubose ASME Quality Systems Certificate, without the performance of an implementation audit, and had ordered safety-related tubing with HTI Purchase Order No. 100710 to Dubose, dated February 14, 2000. (Nonconformance 99900345/00-201-03)

- D. Criterion XII, "Control of Measuring and Test Equipment," of 10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants," requires, in part, that "Measures shall be established to assure that tools, gages, instruments, and other measuring and testing devices used in activities affecting quality are properly controlled, calibrated, and adjusted at specified periods to maintain accuracy within necessary limits."

HTI Document No. QIP-10, "Control of Measuring and Test Equipment [M&TE] (Calibration)," Revision 1, dated February 11, 1993, Section 6, stated, in part, that "Equipment which was not calibrated prior to the expiration of the period indicated by the color tape on the equipment, shall be considered out of calibration and labeled with an 'Out of Calibration' sticker and not used for any measurement until recalibrated."

Contrary to the above, HTI's program to periodically verify that the M&TE used in the production of safety-related products was within the required tolerances had not been adequately implemented. Numerous M&TE with calibration stickers, which clearly indicated a specific calibration due date that had passed, had been available for use for an extended period of time. (Nonconformance 99900345/00-201-04)

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, IQMB, Division of Inspection Program Management, 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) a description of steps that have been or will be taken to correct these items; (2) a description of steps that have been or will be taken to prevent recurrence; and (3) the dates your corrective actions and preventive measures were or will be completed.

Dated at Rockville, Maryland
this 9th day of November 2000

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF NUCLEAR REACTOR REGULATION

Report No: 99900345/00-201

Organization: Hayward Tyler, Inc.

Contact: Douglas Roszman
Quality Assurance Manager

Nuclear Activity: Designs, manufactures and supplies safety-related pumps, valves, and replacement parts to NRC Licensees.

Dates: October 3 - October 5, 2000

Inspector: Bill Rogers, Reactor Engineer

Approved by: Dale Thatcher, Chief
Reliability and Maintenance Section
IQMB
Division of Inspection Program Management

1 INSPECTION SUMMARY

On October 3 - October 5, 2000, the U.S. Nuclear Regulatory Commission (NRC) performed an inspection at the Hayward Tyler, Inc., (HTI) facility in Colchester, Vermont.

The inspection was conducted to review selected portions of HTI's quality assurance (QA) program, and its implementation, and the applicable programs and procedures used to design, manufacture and supply safety-related pumps and valves to NRC licensees.

The inspection bases were:

- 10 CFR Part 50, Appendix B, "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants."
- 10 CFR Part 21, "Reporting of Defects and Noncompliance."

2 STATUS OF PREVIOUS INSPECTION FINDINGS

No previous finding were reviewed during this inspection.

3 INSPECTION FINDINGS AND OTHER COMMENTS

3.1 Review of Hayward Tyler, Inc.'s, Organizational Structure

a. Inspection Scope

The inspector performed a review to determine whether HTI's organizational structure, relative to the performance of quality assurance activities, was in compliance with the requirements of 10 CFR Part 50, Appendix B.

b. Observations and Findings

The inspector reviewed the HTI Quality Assurance Manual (QAM), Edition 5, Revision 0, dated February 24, 1999. (Note that when the QAM had been recently revised, all of the sections had been brought to the Edition 5, Revision 0 state.) Section 1 of the QAM stated that the QA Manager has the responsibility, authority and organizational freedom to: Identify quality problems; initiate, recommend, or provide solutions; verify implementation of solutions, and limit or control further processing, delivery, or installation of a non-conforming item or unsatisfactory condition until proper disposition is accomplished. The QA Manager reported to the Vice President and General Manager.

Section 1 of the QAM, "Organization," Exhibit 1, contained a organizational chart which had a position titled Contract Administrator (CA) reporting to the Quality Assurance (QA) Manager. Section 1 of the QAM stated that the Contract Administrator is responsible for contract administration and is the contact with the customer and that the Contract Administrator reports to the QA Manager. In addition, the QA Manager stated to the inspector that the Contract Administrator takes action to maintain the ultimate production schedule.

At the time of the inspection, the Contract Administrator position was vacant and the QA Manager had assumed the duties of the Contract Administrator position. The HTI management indicated to the inspector that they did not intend to fill the vacancy and that the QA Manager would continue to perform the Contract Administrator's duties.

The QA manager indicated to the inspector that since the Contract Administrator was a staff position and reported to the QA Manager or the duties were actually performed by the QA Manager, the QA manager felt he was not under pressure to prioritize production activities before QA requirements. The QA Manager also indicated that he only performed the portion of contract administration related to complete units (as opposed to spare parts) and that he had only completed the administration on several orders and had not done an order from beginning to completion.

c. Conclusion

The inspector concluded that the QA Manager reported to an appropriate level of management (the Vice president and General Manager). However, the inspector also concluded that having the Contract Administrator, whose duties were clearly related to production, report to, or having those duties being performed by, the QA Manager, did not include sufficient independence from cost and schedule when opposed to safety considerations. This was identified as Nonconformance 99900345/00-201-01.

3.2 Review of Hayward Tyler, Inc.'s, Activities Related to the Maintenance and Use of the Approved Vendor List

a. Inspection Scope

The inspector performed a review to determine HTI's activities related to the auditing approval and placement of vendors on the HTI Approved Vendor List (AVL), was in compliance with the requirements of HTI procedures and 10 CFR Part 50, Appendix B.

b. Observations and Findings

b.1 The inspector reviewed HTI's current AVL, Revision 105, dated October 25, 1999. The inspector observed that there were approximately eleven handwritten, undated, and uninitialed changes to the QA Manager's controlled copy of the AVL and that the AVL had not been formerly revised to incorporate any of these changes. Failure to maintain the HTI AVL was included as an example of Nonconformance 99900345/00-201-02.

b.2 The AVL listed thirty-five companies (out of sixty-five companies in the audit program) whose "Next Audit" dates were past due. The past due "Next Audit" dates ranged from recent dates to dates in the years 1996, 1997, 1998, and 1999. The QA Manager indicated to the inspector that he knew not to make a purchase from companies whose "Next Audit" dates were past due.

The inspector reviewed the HTI Non-Conformance Reports (NCR) and located several NCRs which documented companies which were not currently qualified on the AVL.

NCR No. 688, dated April 11, 2000 indicated that Fisher Cast Steel's "Next Audit" date was November 1998. The NCR applied to the HTI Purchase Order (PO) No. 100103, dated October 27, 1999, to Fisher Cast Steel for safety-related casting. The response to the NCR, "Action To Be Taken," stated to accept the item and that the vendor audit was scheduled for May 2000. The vendor audit had not been performed at the time of the NRC inspection.

NCR No. 692, dated April 13, 2000, indicated that the Johnson Brass "Next Audit" date was August 1997. The NCR applied to the HTI PO No. 100826, dated March 3, 2000 to Johnson Brass, for a safety-related centrifugal casting. The "Action to be Taken" section stated to "Accept this item based on past performance as an approved vendor." The vendor audit had not been performed at the time of the inspection.

NCR No. 732 , dated June 28, 2000, indicated that Unlimited Screw's "Next Audit" date was October 1998. The NCR applied to the HTI PO No.101298 to Unlimited Screw, for safety-related set screws. The "Action to be Taken" was an engineering analysis which downgraded the set screws from safety-related to commercial grade with no additional action required. However, the inspector noted that although the screws were ultimately accepted for non-safety use, that the original safety-related order had not been in compliance with the QAM, Section 4, "Procurement Document Control," which stated that a PO for a safety-related item will only be placed with vendors listed on the AVL and that the vendor will have been qualified in accordance with the QAM.

Purchasing and receiving safety-related material, as specified on the HTI PO, from vendors who had not had their safety-related qualification maintained in accordance with the HTI QAM was included as a second example of Nonconformance 99900345/00-201-02.

b.3 The inspector reviewed additional NCRs and the HTI AVL and located two NCRs which documented companies supplying safety-related items which were not listed on the AVL.

NCR No. 727, dated June 15, 2000, indicated that Western Bronze did not hold shipment for audit. The NCR applied to HTI safety-related PO No. 100902 which ordered an impeller. The "Action to be Taken" was to hold the material until the completion of the HTI audit of Western Bronze. However, review of the HTI AVL indicated that Western Bronze was not listed on the AVL. The QA

Manager indicated that he had performed the Audit of Western Bronze on September 7, 2000. However, the HTI audit report, in draft form at the time of the inspection, had not yet been completed and Western Bronze had not yet been listed on the HTI AVL.

NCR No. 731, dated June 26, 2000, indicated that American Motors Services was not listed on the AVL. The NCR applied to HTI safety-related PO 100534 which ordered a sleeve. The "Action to be Taken" answered that American Motor Services had been audited and that a new AVL issue was required. However, review of the HTI AVL indicated that American Motor Services was not listed on the AVL. The QA Manager indicated that he had performed the audit of American Motor Services on March 28, 2000. However, the HTI audit report, in note and checklist form at the time of the inspection, had not yet been completed and American Motor services had not been listed on the HTI AVL.

Purchasing and receiving safety-related material, as specified on HTI POs, from vendors which had not had the safety-related qualification documented in an HTI audit report and which were not listed on the HTI AVL in accordance with the HTI QAM list was included as a third example of Nonconformance 99900345/00-201-02.

c. Conclusion

The inspector concluded: (1) the HTI AVL was not being updated and maintained properly in order to control purchase of safety-related material, (2) that HTI had made safety-related purchases from companies who had not been audited within the required period of time as indicated on the HTI AVL, and (3) HTI had made safety-related purchases from companies who were not listed on the HTI AVL and whose audit reports had not been completed. These items were identified as Nonconformance 99900345/00-201-02.

3.3 Review of Hayward Tyler, Inc.'s, Activities Related to Supplier Program Requirements

a. Inspection Scope

The inspector performed a review of HTI Doc. No. 01-019-204, "Quality Assurance Requirements for Safety-Related Items," Revision A, dated August 13, 1993, to determine HTI's activities related to the requirements for approval and placement of vendors on the HTI Approved Vendor List (AVL), was in compliance with the requirements of HTI procedures and 10 CFR Part 50, Appendix B.

b. Observations and Findings

HTI Document No. 01-019-204, "Quality Assurance Requirements for Safety-Related Items," established the program requirements for vendors producing items which HTI could purchase as safety-related. This document was also supplied to vendors to provide requirements in several areas such as program requirements, 10 CFR Part 21, Right of Access, Sub-Contracting, Marking, Certified Material Test Reports, and non-conformances.

The inspector determined that Paragraph 1. "Program Requirements," stated that items are to be produced [by vendors] under a Quality Assurance Program that:

- A. Is certified by ASME [American Society of Mechanical Engineers] as a Quality System Certification holder; or
- B. Is registered to ISO 9002 by an organization accredited by the R.A.B.; or
- C. Is approved by Hayward Tyler, Inc. Any changes to the Quality Assurance program must be approved in writing by Hayward Tyler, Inc., prior to acceptance of any work.

Discussion with the HTI QA Manager provided additional clarification on the specified program requirements. The QA Manager indicated that HTI could purchase and supply safety-related items based solely on an ASME certification or an ISO 9002 accreditation without performing an audit of the vendor to verify implementation of the program and compliance with applicable 10 CFR Part 50, Appendix B requirements. The QA Manager indicated that he felt the vendor, after initial purchase based on the ASME certificate or ISO 9002 accreditation, would be required to be audited on a triennial basis thereafter (the first actual audit could be as long as three years after the initial purchase).

The inspector reviewed HTI Purchase Order No. 100710 to Dubose National Energy (Dubose), dated February 14, 2000, for the purchase of tubing. The PO specified the item as nuclear safety-related and indicated that 10 CFR Part 21 applied. The HTI QA Manager indicated that Dubose had been qualified for purchase on an ASME Quality Systems Certificate and had not been audited. In addition Dubose was not listed on the HTI AVL.

c. Conclusion

The inspector concluded that HTI procedures allowed for safety-related purchases and sales from vendors based on the vendor's possession of an ASME certification or an ISO 9002 accreditation, without HTI's performing an initial implementation audit of the vendor, and that HTI had used this provision. The inspector concluded that HTI had not established adequate measures to ensure that purchased items conformed to the procurement documents and had not assessed the vendor's control of quality at an interval appropriate to the importance of the product. This was identified as Nonconformance 99900345/00-201-03.

3.4 Review of Hayward Tyler, Inc.'s, Control of Calibrated Equipment

a. Inspection Scope

The inspector performed a review to determine HTI's procedures and implementation related to calibrated measuring equipment used in the manufacture of safety-related items.

b. Observations and Findings

The inspector reviewed the HTI Document No. QIP-10, "Control of Measuring and Test Equipment (Calibration)," Revision 1, dated February 11, 1993. QIP-10 stated that measuring and test equipment (M&TE) information shall be filed in a master log or record card which shall include the serial number, physical location, its condition or accuracy, and its frequency of calibration. QIP-10 also required that color coded labels be attached to equipment requiring periodic calibration stating the date last calibrated and the specific calibration due date. Equipment which was not calibrated prior to the expiration of the period indicated by the color coded label prior to the expiration date shall be considered out of calibration, labeled with an "Out of Calibration" sticker, and not used for any measurement until recalibrated.

The inspector determined, through discussion with the QA Manager and the QC Inspector, that HTI maintained all calibrated standards and equipment in the QC room. The measurement equipment used on the floor was measured against the calibrated standards maintained in the QC room before and after each use. The standards included rods of various lengths and micrometers of various lengths. In addition, the QC room contained other equipment such as a surface table and a coordinate measuring machine.

The inspector performed a visual review of the calibration stickers on the standards and equipment. HTI had a small group of segregated equipment with out-of-calibration stickers which the QC Inspector indicated was being prepared for shipment to a calibration service.

The inspector determined that the calibration sticker on the HTI surface table indicated that the calibration due date was September 17, 1999 and that there was no out-of-calibration sticker on the surface table. The inspector determined that the calibration sticker on the HTI coordinate measuring machine indicated that the calibration was due June 1, 2000, and that there was no out-of-calibration sticker on the coordinate measuring machine (HTI provided documentation that the machine had actually been calibrated on July 20, 2000, but they had not updated the calibration stickers on the equipment). The inspector identified these conditions as an example of Nonconformance 99900345/00-201-04.

Review of the HTI record cards for calibrated equipment and discussion with the HTI QA Manager indicated that many of HTI's calibrated items had been available for use for an extended period past the item's required calibration dates. Examples of this condition included the following:

<u>Item/Serial No.</u>	<u>Interval</u>	<u>Date Checked</u>	<u>Next Date Checked</u>	<u>Actual Interval</u>
Master Gage Blk. #01-023	12 Months	6/29/99	8/28/00	14 Months
11" Mike std. #01-006	12 Months	4/22/99	8/28/00	15 Months
18 Pc. Mike std. #01-009	12 Months	5/3/99	9/13/00	16 Months
1-11" Mike std. #01-007	12 Months	2/23/98	8/00	30 Months

The above items were calibrated by an outside calibration service.

1-2" Mike #11-157	12 Months	2/23/98	8/00	30 Months
2-3" Mike #11-158	12 Months	2/23/98	8/00	30 Months
3-4" Mike #11-159	12 Months	2/23/98	8/00	30 Months
4-5" Mike #11-160	12 Months	2/23/98	8/00	30 Months
5-6" Mike #11-161	12 Months	2/23/98	8/00	30 Months
6-7" Mike #11-162	12 Months	2/23/98	8/00	30 Months
7-8" Mike #11-163	12 Months	2/23/98	8/00	30 Months
8-9" Mike #11-164	12 Months	2/23/98	8/00	30 Months
9-10" Mike #11-165	12 Months	2/23/98	8/00	30 Months

The above items were checked at HTI against a calibrated standard.

The HTI QA Manager had documented certain of these conditions on NCRs in August 2000, and corrective action had been taken. HTI indicated that approximately 80% of the items that were beyond the calibration date had been calibrated (or verified to be within the required tolerances). HTI indicated that the outside calibrations had been performed by PECO, which had only identified three items to be outside the required tolerances. HTI reviewed the three items identified by PECO and determined that use of the standards would not have affected product dimensions beyond an acceptable point.

c. Conclusion

The inspector concluded that HTI's program to periodically verify that the M&TE used in the production of safety-related products was within the required tolerances was not being adequately implemented. The availability for use of numerous M&TE with calibration stickers, which clearly indicated a specific calibration due date which had passed, was indicative of failure of the HTI Management to ensure proper implementation of the calibration portion of the Quality Assurance program. This was identified as Nonconformance 99900345/00-201-04.

4 PERSONS CONTACTED

Dennis Smith, Vice President and General Manager
 Douglas Roszman, Quality Assurance Manager
 Brian Greely, Engineering Manager
 Mark O'Bryan, Manufacturing Manager