

TESTIMONY OF
NUNZIO J. PALLADINO
CHAIRMAN
U. S. NUCLEAR REGULATORY COMMISSION
ON
THE NRC INVESTIGATION INTO ALLEGATIONS CONCERNING
THE HAYWARD-TYLER PUMP COMPANY
BEFORE THE
SUBCOMMITTEE ON OVERSIGHT AND INVESTIGATIONS
COMMITTEE ON INTERIOR AND INSULAR AFFAIRS
UNITED STATES HOUSE OF REPRESENTATIVES

APRIL 6, 1982

Good morning, Mr. Chairman, members of the Subcommittee. At your invitation, I am here this morning to discuss the Nuclear Regulatory Commission's investigation into various allegations regarding the Hayward-Tyler Pump Company of Burlington, Vermont. The allegations are of interest and significance to the NRC because Hayward-Tyler Pump Company is a supplier of components used at some nuclear power plants.

These allegations first came to the attention of the Nuclear Regulatory Commission when a newspaper reporter indicated to Commissioner Peter Bradford that several employees of the company had stated there were problems with the pumps being manufactured at the plant. Commissioner Bradford notified our Office of Inspection and Enforcement on October 30, 1981. On that same day, the NRC Region IV Office in Arlington, Texas, which has responsibility for overseeing nuclear vendors throughout the United States, was also informed of the allegations and, shortly thereafter, initiated an inquiry.

On November 10, Region IV was told by a member of your staff about affidavits from former company employees detailing their allegations. Your staff offered assistance in obtaining the affidavits and subsequently you provided the Commission with copies.

Upon receipt of allegations regarding matters subject to our jurisdiction, the NRC staff pursues the allegations to a

degree sufficient to determine their validity and whether or not a safety problem is involved or NRC requirements are violated. In the case of Hayward-Tyler, in addition to an investigation into the charges of wrongdoing, the NRC staff conducted a special inspection. This inspection was to establish whether past and present manufacturing practices were consistent with codes, purchaser contracts and NRC requirements, and to assess the technical significance of any deficiencies. Our investigation and related inspection and enforcement work are still ongoing.

To date, no immediate safety problems arising from this situation have been identified in operating plants. Only one pump has been installed in an operating nuclear powerplant, that one as the third in a spent fuel cooling system. Its failure would not render the cooling system inoperative. Hayward-Tyler pumps sent to plants under construction can and will be verified as to adequacy for their intended service prior to issuance of an operating license. The staff is continuing to look at the issue of spare parts manufactured by the company and where these parts were shipped.

For the convenience of the Subcommittee, attached to my statement is a brief summary of the significant NRC activities related to the Hayward-Tyler investigation since the allegations were first brought to our attention. The summary focuses particularly on NRC's handling of the investigation, a subject in which you expressed a special interest in your letter of invitation.

The investigation into the Hayward-Tyler employee allegations was conducted first by investigators from our Region IV Office. In early March, I became aware of the fact that Region IV had provided copies of its draft inspection and investigation reports to company representatives. In communications between headquarters and Region IV, it was agreed that responsibility for further investigative activities in the case would be assumed by the Office of Inspection and Enforcement in Washington. Our Office of Congressional Affairs immediately advised you of this transfer of responsibility and of the reasons for the transfer.

At about the same time, Mr. Cummings, as Inspector and Auditor, was directed to review the procedures used in the investigation and, in particular, to investigate the circumstances surrounding the release of the draft reports to the company representatives. On March 30, he provided the Commission with his report and recommendations, which are stated in full in the accompanying summary.

In brief, the Inspector and Auditor found that, notwithstanding whether or not we have specific regulations or guidance addressing this point, common sense should have dictated that the draft reports should not have been released by the Region. He also found that NRC contacts with company representatives were at less than the proper arms length distance, and they were not adequately documented. Mr. Cummings stated that as a result of company contacts, NRC's proposed transmittal letter had been softened.

He did conclude that regional officials had made the changes in good faith believing they were on point and valid.

The Inspector and Auditor's report on the handling of this investigation highlighted shortcomings in the NRC's investigative program of which the other Commissioners and I were already becoming aware. To quote from the conclusion of Mr. Cummings' report to us:

"...OIA's inquiry into the various aspects of the handling of the HTPC investigation/inspection substantiates to a large degree what has been brought to the Commission's attention in the past, to wit, the NRC investigative program is below par. The primary reason for this situation is not a people problem, as we have many fully trained and competent investigators in the field, but rather we lack comprehensive policy and procedures with regard to NRC field investigations."

As a result of the problems that arose in the Hayward-Tyler investigation, the following guidelines have been established.

- No draft investigation reports will be issued without the explicit approval of the Executive Director.

- Any meetings held with representatives of organizations or individuals under investigation will have a written summary of the meeting prepared and placed in the files of the investigation.

The Commission is taking other steps to improve our overall investigative program, including establishment of a separate Office of Investigation. It is imperative for the NRC to possess the capability to perform thorough, timely and objective investigations which command the respect of knowledgeable persons inside and outside the agency. We are now moving expeditiously to assure that such an investigative program is in place for the future.

This completes my prepared remarks. Accompanying me today are Mr. William Dircks, NRC Executive Director for Operations; Mr. James Cummings, Director of our Office of Inspector and Auditor; and the principal NRC officials who have had responsibility for and are knowledgeable concerning the Hayward-Tyler investigation. They can provide specific details regarding the investigation itself. We now would be pleased to respond to your questions.

SUMMARY OF NRC INVESTIGATIONS INTO ALLEGATIONS
CONCERNING THE HAYWARD-TYLER PUMP COMPANY

On October 30, 1981 NRC's Office of Inspection and Enforcement was notified by Commission Bradford's Office that a newspaper reporter had indicated that several employees of the Hayward-Tyler Pump Co. had stated there were problems with the pumps being manufactured at the plant. The NRC Region IV office was informed of the allegations on the same day. On November 2 the NRC Region IV office contacted the reporter to discuss the general substance of the allegations. The reporter did not provide the names of the employees but indicated he would encourage them to contact the NRC.

On November 10, Region IV was informed by Congressman Markey's staff that a second reporter had affidavits from former Hayward-Tyler Pump Co. employees detailing allegations against the Company. The staff member agreed to supply copies of the affidavits to the NRC upon receipt. Upon contact of the second reporter by NRC Region IV, the reporter refused to provide additional information and suggested that the NRC recontact Congressman Markey's staff. Upon contact, the staff suggested NRC Region IV defer its investigation until receipt of the affidavits.

On December 17, NRC Region IV received Congressman Markey's December 11 request for an investigation, which forwarded the affidavits from the former employees of the Hayward-Tyler Pump Co. NRC Region IV developed plans for an investigation and a special inspection. The investigation was to determine the validity of the allegations, which involved management failure to support the Quality Assurance (QA) program, use of improper adhesives, hiding of records from NRC inspectors, lack of qualified welding inspector on the second

shift, and falsification of records. The inspection was to establish whether past and present manufacturing practices were consistent with codes, purchaser contracts and NRC requirements, and to assess the technical significance of any deficiencies.

During the month of January and early February 1982, NRC Region IV investigators interviewed about 38 present or former employees of the Hayward-Tyler Pump Co., examined appropriate records and observed operations in progress at the manufacturing facility.

On January 26, 1982, representatives of the Hayward-Tyler Pump Co. met with John Collins, Region IV Administrator, and representatives of the Office of Inspection and Enforcement and the Office of the Executive Legal Director to express their resolve to correct any problems identified during the NRC investigation. They informed the NRC that they had initiated their own internal investigation into what had transpired and were evaluating the adequacy of their existing QA program.

On February 12, Hayward-Tyler representatives met with Mr. Collins and his staff in the Region IV office to discuss the results of the company's internal investigation. It was at this meeting that the company was provided copies of the draft NRC Region IV inspection report and investigation report for proprietary review. Region IV representatives advised the company that the reports were preliminary in nature and subject to change as the data was further analyzed by the NRC. The Company was also informed that they would have to take action to notify the purchasers of the pumps regarding the potential problems. The actions are subject to NRC approval.

On February 18, Mr. Collins briefed Mr. Williams Dircks, NRC Executive Director for Operations, and representatives of the Office of Inspection and Enforcement, and Nuclear Reactor Regulation regarding the findings of the NRC investigative and inspection efforts. As a result of that briefing it was decided that certain aspects of the NRC effort should be expanded. The NRC Region IV investigative effort continued through February and into early March. On February 24, NRC Region IV Deputy Administrator Karl Seyfrit and staff met with representatives of the Hayward-Tyler Pump Co. to assure that corrective actions would be implemented by the company and that measures would be taken by the company to notify purchasers of the pumps.

On February 25, accompanied by the Executive Legal Director and Deputy Director of the Office of Inspection and Enforcement, Mr. Dircks met with company representatives at their request. During the meeting the Hayward-Tyler Pump Co. representatives commented that they appreciated the cooperation of NRC Region IV in expediting the investigation since any ongoing investigation is disruptive to operations. The company also expressed concern that, based on the February 12 and 24 meetings with NRC Region IV personnel, the preliminary investigation findings regarding management knowledge of QA program violations and safety significance of the violations might not be supported by the facts. The Company also asked the NRC to note that the management of the company had changed since the time of the NRC investigation and inspection.

The staff's response to the company representatives was that it would look into the matter and attempt to assure that its findings would be substantiated in the Inspection and Investigation Reports. According to the NRC

participants at the meeting, no suggestions were made by the company that NRC change the reports or statement of findings, and no commitments were made by the NRC representatives to make a change. At the conclusion of the meeting, Mr. Sniezek, Deputy Director of the Office of Inspection and Enforcement, called Mr. Seyfrit, the Deputy Regional Administrator, and reviewed the content of the meeting and asked him to make sure that they were not making unsupported findings. Within another day or so Mr. Dircks talked to John Collins, the Regional Administrator, and gave him a report of the meeting. Another draft of the proposed letter transmitting the findings of the Inspection Report has been prepared and there have been at least two changes incorporated in the letter. Both changes were made to conform the letter to the factual content of the Investigation Report. This letter is still subject to further changes pending completion of the Headquarters review.

On March 4, Mr. Dircks became aware that the draft inspection and investigation reports had been provided to representatives of the Hayward-Tyler Pump Co. during the February 12 meeting. On March 5, after conferring with Mr. Collins, further inspection and investigative activities were transferred to the Office of Inspection and Enforcement in Washington because of the sensitivity of the case. Also the Office of Inspector and Auditor was directed to investigate the circumstances surrounding the release of the draft reports to the company representatives.

The investigation by the Office of Inspector and Auditor has since been completed. NRC Region IV has completed documenting all their inspection and investigation work on this matter. The documentation has been forwarded to the Office of Inspection and Enforcement where a determination will be made as

to what additional NRC action, if any, will be necessary to verify the allegations and ensure that the matter is properly resolved from both safety and enforcement standpoints. This effort is being conducted under the direction of the Senior IE Investigator, supported by IE investigators and engineers, and entails the following specific determinations:

- whether the investigation and inspection were conducted in a technically adequate manner;
- whether sufficient work has been conducted to date to resolve the allegations;
- what further investigation and inspection activity needs to be conducted;
- whether issues of criminality are involved; and
- whether, and what type, enforcement action is warranted.

On March 24, the staff briefed the Commission on the safety significance of the problem and provided the Commission with the following conclusions:

- No immediate safety concerns have been identified with the pumps manufactured by the Hayward-Tyler Company.
- Only one pump has been installed at an operating nuclear power plant. That pump is installed as a third pump in a spent fuel

cooling system. Its failure would not render the cooling system inoperable.

- The pumps sent to plants under construction can and will be verified as to adequacy for their intended service prior to issuance of an operating license to these facilities.

The staff is presently looking into the issue of spare parts manufactured by the company and where these parts were shipped.

On March 30, the Director of the Office of Inspector and Auditor provided the Commission his report and the following statement of conclusions and recommendations:

- "• Clearly, on February 12, 1982, Region IV officials should not have released drafts of the inspection and investigative reports, the draft transmittal letter to the inspection report and the draft Notice of Nonconformance. Notwithstanding whether or not we have specific regulations or guidance addressing this point, common sense should have dictated against this decision, given the totality of the circumstances.
- "• Both the EDO and regional officials - given the frequency and informality of the various meetings and phone conversations with Mr. Rowden, et al - should have confirmed by memo or letter the substances and merits of these contacts.

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Re: Hayward Tyler Pump Company

Dear Chairman Markey:

Your Subcommittee will hold a hearing on April 6 regarding NRC's investigation of allegations concerning the Hayward Tyler Pump Company ("HTPC"). We thought it would be helpful to recite briefly the background of our involvement in this matter. We also wish to share with you our conclusions regarding the HTPC pumps produced during the relevant period. In brief, we concluded, for the reasons summarized in this letter, that the claims made with regard to the safety and reliability of the HTPC pumps at issue were not substantiated, and that HTPC did not withhold any records from the NRC or falsify any such records.

We are informed by your staff that the April 6 hearing will examine NRC's actions in providing HTPC and its counsel with copies of certain inspection and investigation reports marked "draft." I think it important you understand that these documents were given to us by representatives of NRC with the express request that we review them and provide such comments regarding proprietary information and completeness and accuracy of factual statements as appropriate for NRC's consideration before issuance of the reports. We did not believe at that time, nor do we now believe, that there was any impropriety in our receiving these documents or in our commenting on them as we were asked to do by the responsible NRC representatives. Nor did the persons in my firm or the representatives of HTPC who were given these documents have

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any reason to believe there was any impropriety in the actions of NRC in furnishing them to us for these purposes.

As you know, the NRC audit and investigation of HTPC began after you received and sent to the agency the sworn statements of five ex-employees alleging violations of HTPC's Quality Assurance ("QA") program and other improprieties. These allegations related to events predating the acquisition in late 1980 of HTPC by its current parent, Indian Head Inc. (a subsidiary of Thyssen-Bornemisza, N.V., a Netherlands Antilles corporation) and did not involve any charges of wrongdoing against the present owners or the new senior management of HTPC. Nevertheless, because of their concern over the safety, reliability, and legal implications raised by these allegations, Indian Head and HTPC retained our firm to conduct a separate investigation into their merits. Our firm, in turn, retained the consultant services of Systems Research and Applications Corp., and its President, Dr. Ernst Volgenau, former NRC Director of Inspection and Enforcement, to furnish us with technical assistance in this inquiry.

Our principal objective from the beginning, with our clients' full support, has been to make certain that all the relevant evidence was developed and that this evidence was fairly and competently evaluated. The present owners of HTPC and its new senior management wanted to know if there are problems with the pumps produced by HTPC during the period at issue, and whether any remedial steps were necessary to maintain confidence in their performance.

Our separate inquiry focused on the merits of three key issues: (1) whether there were so many deficiencies in HTPC's Quality Assurance program that its pumps were neither safe nor reliable; (2) whether HTPC had removed files to hide them from the NRC's auditors; and (3) whether HTPC had falsified Quality Assurance records. We gave special emphasis in our inquiry to the matter of pump safety and reliability. In this regard, we found that there were some quality assurance deficiencies during the relevant period, but that these primarily involved problems of paperwork and did not adversely affect the safety or reliability of the HTPC pumps. According to reports in the public press, various NRC representatives have stated that NRC's investigation failed to uncover any indication that any pumps were unacceptable and that the deficiencies in paperwork "were not very significant and didn't really have any bearing on the quality of workmanship that went into the pumps themselves."

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The bases for our conclusion regarding safety and reliability and our finding that the remaining allegations made by the ex-employees also were unsubstantiated are set forth below.

1. The Alleged Quality Assurance Deficiencies and Their Safety Significance

The focus of our inquiry was the matter of quality assurance and its implications for pump reliability. Our inquiry found that there was a QA program in operation at HTPC which was effective for the pumps manufactured. Our inquiry did confirm a number of the nonconformances with the detailed HTPC QA Manual, described by the NRC in its exit interview on January 29, 1982. These occurred primarily in the areas of QA training and documentation of manufacturing process control. These findings, however, did not, in the opinion of our experts, adversely affect the safety and reliability of HTPC nuclear Code pumps.

We note, as background, that the HTPC QA program had been scrutinized in some 50 external audits over the past five years -- by the NRC, by customers and by HTPC's own third-party QA auditors. The deficiencies we identified require, and are receiving, prompt correction; however, they are not of such a nature as to undermine the efficacy of the overall QA program or the operational reliability of the pumps produced. Of paramount importance in the latter regard is the fact, specifically verified by HTPC during the course of this inquiry, that each nuclear Code pump was rigorously, and successfully, pressure and performance tested before delivery to the customer.

As stated, our inquiry did indicate the need for specific remedial QA steps -- particularly in the area of the QA training program and in manufacturing process control. The new management at HTPC recognizes this and has moved aggressively to make improvements with a series of specific actions, as set forth in its letter to NRC Regional Administrator Collins, dated February 12, 1982.

As we have also stated, these deficiencies were not of such a nature as to undermine confidence in the safety and reliability of HTPC nuclear Code pumps manufactured during the relevant period. Outside of QA training, the instances in which we confirmed that the QA program were not adhered to consisted primarily of omissions in the use and completion of route sheets. In most instances at which such QA information was missing, that information was available from alternative HTPC records. Other instances of QA deficiencies, primarily

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unrecorded dimensional changes of certain internal pump parts, occurred generally with respect to parts, such as keys and impellers, which are not Code parts and which require machining for proper fitting. The changes would not affect pump operability except, if anything, to make the pump work better.

Our conclusion regarding the reliability of the HTPC pumps is strongly supported by two factors which we find particularly important: the long-utilized and demonstrably successful design technology of these types of centrifugal pumps, and the extensive testing each HTPC nuclear Code pump received before being shipped to its utility customer.

As respects pump technology, it is worth emphasis that these centrifugal pumps, whether vertical or horizontal, commercial or nuclear, employ time-proven and functionally simple technology. Pumps with similar design have been in use for more than fifty years in various commercial and agricultural applications. Significantly, moreover, commercial and agricultural water pumps are not built to the quality standards of the nuclear pumps, and, unlike nuclear pumps which receive regular servicing, non-nuclear pumps ordinarily receive little maintenance; yet our experts tell us these pumps demonstrate excellent reliability.

Finally, there is the matter of pump tests. Without minimizing the importance of other elements of the QA program, the best indicator of pump reliability is the rigorous and extensive tests performed on each nuclear Code pump manufactured at HTPC's plant. The hydrostatic test of the pressure boundary subjects the pump to 150% of its anticipated in-service pressure exposure. The performance test measures the performance of the pumps over a range of flow conditions far greater than those the pump will experience in anticipated use at a power plant. HTPC has confirmed that every one of its nuclear Code pumps has undergone and passed these tests and that the Authorized Nuclear Inspector witnessed the hydrostatic test of the pressure boundary parts of each nuclear Code pump. Each customer has the right to witness both the performance and hydrostatic tests for each pump, and most have done so. This testing, together with the commissioning process when the pump is put into service, provides strong assurance of quality and reliability.

HTPC has been urged by NRC to furnish the Company's customers with an added measure of assurance as to pump reliability, and the Company has agreed. HTPC has proposed to NRC that each utility which has or will purchase a HTPC nuclear

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Code pump receive instructions for the performance of a series of additional inspections and tests when the pump is put into service. They will also receive additional guidance on the installation of replacement parts.

2. The Alleged Hiding of Documents

It was alleged that HTPC management ordered the movement of several boxes of documents in January 1980 prior to an NRC audit to avoid review of the documents by the NRC auditors.

This issue is based on a misunderstanding as to the NRC audit process, which requires production of all requested records by the company under audit regardless of their location. Moreover, our inquiry indicated that boxes containing extra copies of nuclear Code pump Quality Assurance documents, returned by a firm that had microfilmed them, were moved to a HTPC warehouse because these and other boxes of non-QA files were a clutter and an eyesore. We also learned that, on another occasion, closed-out and superceded route sheets for non-nuclear grade parts were sent to the warehouse because there was insufficient space to store them at the plant. The warehouse is commonly used to store a variety of HTPC files.

Of primary importance is the fact that the movement of these documents to the warehouse did not affect their availability to the NRC. There is no indication or allegation that during the period covered by the sworn statements NRC auditors asked for documents which were denied them. The NRC audit procedures call for the auditors to request documents from the company, and company officials are expected to provide them; auditors do not search through files or file boxes to seek out records for themselves. If any documents had been denied to the NRC auditors by HTPC during the relevant period, it would have been reflected in the audit reports for the period. These reports, which are public documents, say nothing of any such denial. For these reasons, we found no basis for the allegation that Quality Assurance documents had been hidden from the NRC auditors.

3. The Alleged Falsification of Route Sheets

The final significant allegation, made by one of the ex-employees, was that in November, 1979, HTPC typed many route sheets on an after-the-fact basis. The affiant clearly implied that these route sheets somehow were fabricated or falsified.

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The inquiry showed that duplicate route sheets were typed during this period, but that the original, handwritten route sheet was attached to the typed route sheet. The reason for the typing is simple. The American Society of Mechanical Engineers ("ASME") was due to audit HTPC in November, 1979, to determine if HTPC's authority to build nuclear Code pumps should be renewed. One of the criticisms of HTPC's QA program was that the nuclear Code pump route sheets were handwritten and, due to constant handling in the manufacturing process, the sheets became difficult to read and audit. To address that criticism, HTPC prepared in typed form all of its then existing nuclear Code pump route sheets. As stated, the original, handwritten route sheets were attached to the typewritten route sheets. We concluded that there was no falsification or fabrication of documents, and that the ex-employee had misinterpreted the Company's actions.

In sum, even though the ex-employees' allegations concern a period prior to Indian Head's ownership of HTPC, and the replacement of HTPC's senior management, our clients have treated the allegations as matters of the greatest importance. Their retention of our firm and, through us, of Dr. Volgenau's firm, with our collective experience in nuclear matters, is a clear reflection of the importance which they attach to this matter. We and our consultants have devoted substantial efforts over the past many weeks to find the facts, and we appreciate your courtesy in giving us an opportunity to discuss our findings with you and to answer any questions you may have.

Yours very truly,

Marcus A. Rowden
Marcus A. Rowden

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