

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

REGION III

Report No. 50-358/79-13

Docket No. 50-358

License No. CPK-88

Licensee: Cincinnati Gas and Electric
Company
139 East 4th Street
Cincinnati, OH 45201

Facility Name: Zimmer, Unit 1

Investigation At: Zimmer 1 Site, Moscow Ohio;
Waldinger Corporate Office, Des Moines, IA

Investigation Conducted: April 11-13, 18 and 26-27, 1979

Investigator: *J. E. Foster*
J. E. Foster 6/7/79

Inspector: *K. R. Naidu*
K. R. Naidu 6/7/79

Approved By: *C. E. Norelius*
C. E. Norelius
Assistant to the Director 6/8/79

D. W. Hayes
D. W. Hayes, Chief
Engineering Support Section 1 6/8/79

Investigation Summary

Investigation on April 11-13, 18 and 26-27, 1979 (Report No. 50-358/79-13)

Areas Inspected: Special, unannounced investigation of quality control and welding related to heating, ventilating and air conditioning (HVAC) system; review of pertinent records, inspection of installed components, and interviews with personnel. The investigation involved 100 inspector-hours onsite by two NRC personnel.
Results: Three items of noncompliance (all infractions) were identified in the following areas; failure to translate requirements and specifications - Paragraphs 4, 12; failure to have an approved brazing procedure - Paragraphs 11, 12, failure to conduct an audit - Paragraphs 4, 12.

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INTRODUCTION

The Zimmer Unit 1 Nuclear Power Plant, licensed to the Cincinnati Gas and Electric Company, is under construction near Moscow, Ohio. Sargent and Lundy is the architect-engineering firm for the plant, which is being constructed by Kaiser Engineering. The facility will utilize a Boiling Water Reactor (BWR) designed by General Electric Company.

Waldinger, Young and Bertke, a joint venture, provided and installed heating, ventilating, and air conditioning equipment (HVAC) for the Zimmer plant. These systems serve both safety related and non-safety-related areas of the plant.

REASON FOR INVESTIGATION

On March 20, 1979 Individual "A", a former Waldinger employee, contacted the NRC Region II (RII) office by telephone. On March 21, 1979, Individual "A" met with RII personnel in the RII office and provided them with allegations concerning actions of the Waldinger Corporation at the Zimmer Unit 1 and Washington Nuclear Project No. 2 sites. Allegations relating to the Washington Nuclear Project No. 2 will be covered in a separate report. On the basis of the allegations received, an NRC investigation was initiated.

SUMMARY OF FACTS

On April 30, 1979, RII advised Individual "A", by letter, of their understanding of the allegations he provided (See Exhibit I) and transmitted these allegations to Region III for investigation of allegations relative to the Zimmer Unit 1 plant.

NRC Region III (RIII) personnel contacted Individual "A" by telephone on April 4, 1979, and discussed his allegations in detail. Allegations received concerned lack of proper procedures, improper welding, lack of and falsification of welder qualifications, quality control and improper handling of nonconformance reports.

During previous routine inspections of HVAC installations at the Zimmer site (See IE Inspection Reports 50-358/77-11 and 50-358/78-13) RIII inspectors had identified the lack of welding and inspection

criteria for the HVAC systems, and these criteria were developed by the contractor and architect engineer, as was indicated during followup inspections.

RIII personnel visited the Zimmer Site on April 11-13, and 26-27, 1979, reviewed pertinent records, inspected installed equipment, and held interviews with Waldinger personnel. Two signed statements were obtained regarding welder qualification testing during the April 11-13, 1979 visit.

It was found that the contractor's re-inspection of HVAC systems had identified many nonconforming conditions, which were being properly recorded and dispositioned. Site personnel indicated that Individual "A" had dispositioned several hundred nonconformance reports in his capacity as Chairman of the Waldinger Material Review Board. However, site personnel, on review of the dispositions, had refused to accept them, voided the reports, and were in the process of resubmitting new nonconformance reports into the review process.

Review of records maintained onsite relative to welder qualifications indicated they were acceptable. Private interviews with personnel connected with the welding qualification process, and signed statements received on the basis of those interviews did not indicate that welder qualification coupons had been falsified. A review of the Waldinger QC Manual and of actions at the Zimmer site indicated that the Waldinger onsite QC organization has acceptable independence, and that actions had been performed in conformance with the Waldinger QC Manual.

It was found that criteria for expansion anchors used for bolting safety-related ventilation system hangers and supports had been revised by the architect-engineering firm for the plant, and a re-inspection of all concrete expansion anchors is yet to be performed. This review of concrete expansion anchors was apparently brought about in part by the findings of IE Inspection Report No. 50-358/78-18, where installation problems related to concrete expansion anchors on piping supports and snubbers were identified.

RIII personnel visited the Waldinger Corporation Headquarters in Des Moines, Iowa on April 18, 1979, reviewed the qualifications for quality personnel, toured the Waldinger facility, and held discussions with Waldinger management personnel regarding their quality control program and the provisions of the quality control manual. Also, the actions of Individual "A" as the Chairman of the Waldinger Material Review Board were discussed. During discussions with Waldinger management they indicated that they had found that Individual "A"

was not qualified for his position. They stated they had noted an inability on his part to perform adequate engineering analysis, and had requested verification of his educational history. They stated the university of record advised that no such individual had attended and that the university did not provide the type of degree indicated on Individual "A"'s records.

The RIII investigation specialist attempted to verify the educational and work experience information contained in Individual "A"'s file, without success. It was evident that the information was falsified. RIII personnel advised Waldinger Corporate and site personnel that since this individual's qualifications were in question, they considered any engineering judgements or dispositions made by this individual to be highly questionable and unacceptable. Waldinger personnel committed to removal and re-submittal of any documents containing engineering evaluations performed by Individual "A" at the Zimmer site.

During the investigation, RIII personnel identified three items of noncompliance which do not appear to be directly related to the allegations. These items concern failure to specify the radiation resistance of gaskets and flexible connections for the HVAC systems, failure to have a procedure for the brazing of stainless steel ducts to carbon steel hangers, and failure to assure that the Waldinger Corporation performed an annual audit of the site operations as required by the Waldinger QA manual.

While the majority of the contractor's re-inspection effort has been completed (except for systems within the reactor containment) at the time of this report, much of the re-work, repair and dispositioning of nonconformance reports relative to HVAC systems remains to be accomplished. This program of re-work and repair will be reviewed during subsequent NRC inspections at the Zimmer site.

CONCLUSIONS

1. Three items of noncompliance with NRC regulations were identified during the investigation. These items do not appear to be directly related to the allegations provided by Individual "A".
2. No evidence could be developed to indicate lack of or falsification of welder qualifications, improper quality control, or improper handling of nonconformance reports.

3. Individual "A" was not qualified for his position with the Waldinger Corporation. His educational and work experience had been falsified.
4. Waldinger personnel committed to search out and remove any engineering decisions made by Individual "A" and re-evaluate such decisions.
5. As some re-inspection and much of the re-work or repair of portions of the HVAC systems including those within the reactor containment remains to be accomplished, this area will be reviewed during subsequent NRC inspections at the Zimmer site.

DETAILS

1. Personnel Contacted

Cincinnati Gas and Electric

G. E. Bennett, Construction Engineer
B. K. Culver, Project Manager
R. P. Ehas, QA&S Engineer
J. W. Haff, QA&S
D. C. Kramer, QA&S Engineer
W. W. Schwieters, QA&S
J. P. Weisenberg, QA Engineer
R. L. Wood, QA&S

Waldinger Corporation

C. Boswell, QA Manager
G. Domis, Project Engineer
R. M. Kaplan, Corporate Counsel
D. G. Martin, Project Manager, Sheet Metal
G. L. Mitchell, Assistant Vice-President, Sheet Metal
D. M. Stienham, Site QA Supervisor
R. Thompson, Welding Supervisor

Sargent and Lundy

M. Schuster, Welding Engineer

Individuals

"A" thru "C"

2. Contact with Individual "A"

Individual "A" was contacted by RIII personnel on April 4, 1979. He stated that he had been the manager of Project Engineering, Nuclear Division for the Waldinger Corporation, and in this capacity had made three visits to the Zimmer site to assist them with identified problems. He indicated that from these visits and discussions with corporate personnel he became aware that there were numerous problems involved with the (HVAC) systems at the Zimmer site. He stated that his concerns regarding the Zimmer site had been outlined in the letter provided by RII. These allegations were discussed with him in detail.

Individual "A" stated that he was aware the welding on the HVAC systems had not originally been specified to meet the requirements of the American Welding Society (AWS) D1.1 code. He indicated that this deficiency had been identified during an NRC inspection, the specification had been revised to reflect a requirement for AWS D1.1 and that Waldinger, Young and Bertke (WYB) had requested relief from some of the requirements of that code. He stated that he also became aware that 6010 welding rod had been used to weld stainless steel to carbon steel and that there were many nonconformance reports for the HVAC systems.

Individual "A" indicated that there was one nonconformance report for each hanger which had been inspected, and each nonconformance report identified several nonconforming situations per hanger. He indicated that in addition to the nonconformance reports, "punch lists" were given to the inspectors for inspecting minor construction deficiencies such as lack of nuts, or bolts not tightened correctly, and these punch lists went to the construction manager. Individual "A" stated he felt that this was an improper method of correcting such nonconformances.

Individual "A" stated he had been advised by a senior workman at the site that all of the welders qualifications coupons had been performed by one individual in a shop in Cincinnati, and as such all of the welder qualifications on site had been falsified. Individual "A" provided the names of other individuals he believed would corroborate this allegation.

He indicated that the Waldinger Quality Control Manual contains a provision for a Material Review Board of at least three people who are charged with reviewing and dispositioning nonconformance reports. He stated, however, that he had dispositioned at least 500 nonconformance reports by himself with no assistance from any other individual on the Material Review Board. He indicated this action was in nonconformance with the Waldinger Quality Control Manual. Individual "A" also indicated that various communications between the site Quality Control personnel and Waldinger Corporate personnel had to go through the Construction Project Manager onsite, and he felt this condition was contrary to the principle of separation of Quality Control and Construction. Individual "A" indicated he had also become aware the expansion anchors utilized in the installation of HVAC systems were improper, and that unknown (manufacturer unidentifiable) bolts had been installed in some locations. Individual "A" was not able to

supply any locations for any nonconforming situation including that related to concrete expansion anchors. Individual "A" stated that an inspection onsite would corroborate his statements, and that the site QC manager would provide NRC personnel with a true story regarding site conditions.

Individual "A" indicated that in his disposition of several hundred nonconformance reports he had initially dispositioned several hundred reports as "reject" or "rework." He stated the Waldinger Assistant Vice-President had reviewed one hundred of these dispositions, and ordered him to change them to indicate "accept as is" for the nonconforming situations.

3. Visit to Zimmer Site on April 11-13, 1979

RIII personnel visited the Zimmer site on April 11-13, 1979, reviewed correspondence between the licensee and WYB, reviewed pertinent records, reviewed the specification for HVAC systems, reviewed nonconformance reports and welder qualification records, and reviewed audits performed by both the licensee and by Waldinger personnel. During this visit interviews were held with licensee and Waldinger personnel, and two signed statements were obtained from WYB personnel.

4. Correspondence Review

Correspondence between the licensee and Waldinger indicated that subsequent to an NRC inspection in August of 1978, it had been recognized that the specification for HVAC duct work welding did not include a requirement that the welding meet the requirements of AWS D1.1. Records indicated a series of meetings between the licensee, Waldinger and Sargent and Lundy personnel had taken place to resolve differences in interpretation of AWS criteria, and prepare welding procedures, inspection criteria and a re-inspection program for review of already accomplished welding.

As the specification, H2298, for HVAC systems, prior to August 8, 1978, had not specified that seismic category 1 hangers were required to be welded and inspected to AWS D1.1 requirements, this was considered an item of noncompliance with NRC regulations in that design principles had not been translated into workable documents to encompass the criteria necessary for fabrication of these systems. It was noted that the HVAC specification had been amended to provide for this information, and no response will be required for this item of noncompliance.

5. Record Review

RIII personnel reviewed welder qualifications, welding procedure qualifications, nonconformance reports and other documents related to HVAC installation. Welder qualification records were found to be acceptable.

Review of nonconformance reports indicated several hundred nonconformance reports had been transmitted to the Waldinger corporate office in Des Moines, Iowa and dispositioned by Individual "A". These nonconformance reports were found to have been reviewed by other members of the Material Review Board present at the Zimmer site, and had been found to be unacceptable and voided. All copies of nonconformance reports which had been dispositioned by Individual "A" were found to be marked void and the majority of them had been re-written and resubmitted into the nonconformance review system. All of the voided nonconformance reports appeared to have been incorrectly filled out in that the wrong spaces had been utilized to contain information, and most did not clearly delineate the nonconforming situation or did not have a basis for the recommended action. When there was a basis for the recommended action, the basis appeared unacceptable in many cases. None of the nonconformance reports reviewed had been processed by Cincinnati Gas and Electric or Sargent and Lundy, as provided for under present site procedures.

6. Interviews with Welding Personnel

RIII personnel interviewed two of the Waldinger personnel associated with welding activities at the site. These interviews were directed toward obtaining information as to possible falsification of welder qualification coupons. Individual "B", the site welding foreman, who indicated he had been among the first individuals employed at the site, indicated that initial welding qualifications had been performed in the Cincinnati shop of Young and Bertke and these coupons had been tested by Gladstone Laboratories. He indicated that subsequent groups of welders had been tested at the Zimmer site and their test coupons had been examined by radiographic testing performed by Peabody Testing at the Zimmer site. He indicated that these tests had been properly performed and that no welder had ever been qualified through use of another welder's test piece. He stated his feeling was that site management personnel would never allow such a practice. A typed transcript of the signed statement indicating the items discussed during the interview is included as Exhibit II.

Individual "C", stated that he had been involved in the performance of welder coupon fabrication by all welders tested at the Zimmer site. He stated that all of the welders employed by Waldinger, Young and Bertke had been properly qualified and that no welder had been qualified by use of another welder's coupon. During this interview Region III personnel were shown the test facility and area utilized for performance of welder qualification coupons. A typed transcript of the signed statement obtained from Individual "C" during the interview is included as Exhibit III.

7. Review of Quality Control Program

RIII personnel reviewed the Quality Control program implemented at the Zimmer site. Under the program, Waldinger personnel perform quality control inspections or re-inspections of installed hangers and generate "punch lists" which go to construction. These "punch lists" concern easily corrected items or items which generally will bring the installed hangers up to design requirements, and they are then re-inspected. This is a common practice and is considered acceptable.

RIII personnel were advised that when an inspector notes a nonconformance the hanger inspection report is labeled "non-conformance report." A section of the report is utilized to describe the nonconforming condition and the reason for the rejection of the nonconforming condition. This nonconformance report is then issued and reviewed by the Material Review Board which disposes the nonconformance. Under the Waldinger Corporation Quality Control Manual, the Material Review Board consists of the Project Manager, Project Engineer, and Quality Assurance representative from the site. By memo dated January 23, 1979, Individual "A" had been made Chairman of the Material Review Board for the Zimmer site. Discussion with Waldinger site personnel indicated that this designation had been done as a mechanism to speed the proper disposition of nonconformance reports. Following the Material Review Board decision, the inspection report contains areas for delineation of the disposition for the nonconformance which can be either: accept as is, repair, re-work, or reject. Under the provisions of site agreements made concerning the re-inspection effort, dispositions of "rework" or "reject" had been submitted to Cincinnati Gas and Electric for approval prior to implementation of the disposition. However, subsequent to March 2, 1979, the decision was made to allow WYB personnel to complete the work required by such dispositions and then submit a copy of the final

reinspection report to Cincinnati Gas and Electric for review. Dispositions for "accept as is" or "repair" are required to be submitted to Sargent and Lundy engineers for concurrence with their disposition. This procedure is considered acceptable.

It was found that, by letter of December 28, 1978, communications between site quality assurance or quality control departments and Waldinger Corporate headquarters was directed to proceed through the project manager for each respective site. This document also directs the relationship between the project manager and corporate quality assurance/quality control departments to be cordial, but stresses the separation of construction with quality assurance and quality control. A review of the document does not indicate any positions which are contrary to NRC requirements. Discussions with site quality control/quality assurance personnel indicate that the project manager has not interfered with the objective performance of their duties. A typed transcript of this letter is included as Exhibit IV.

8. Visit to Waldinger Corporate Headquarters

RIII personnel visited the Waldinger Corporate headquarters in Des Moines, Iowa, on April 18, 1979. During the visit, qualifications of quality assurance/quality control personnel were reviewed, and discussions were held with corporate management personnel regarding allegations which had been made concerning actions at the Zimmer site and concerning the implementation of their quality control program. During this visit a signed statement was received concerning disposition of nonconformance reports.

Qualifications for site and corporate welding engineers, welding foreman, and site quality assurance personnel were reviewed by RIII representatives. During this review, qualifications for Individual "A" were reviewed, and a copy of his resume was obtained. Documents provided identified Individual "A" as the engineer assigned to the nuclear sheet metal staff. Waldinger personnel indicated that they had questioned Individual "A"'s qualifications, because of his inability to perform adequate engineering dispositions. They advised that they had contacted the university indicated on his resume, which had advised them that Individual "A" had not attended the university and that the university did not provide a degree in mechanical engineering as indicated on Individual "A"'s resume. They stated that shortly after this discovery, Individual "A" had left the company.

Discussions were held with Waldinger corporate personnel regarding the handling of the nonconformance reports which Individual "A" had dispositioned. They indicated Individual "A" had been designated as Chairman of the Material Review Board to facilitate timely disposition of nonconformance reports generated at the Zimmer site and that these reports had been further reviewed by site personnel as required by the Waldinger QC manual. They stated that while a Material Review Board had not met in one place to consider the various nonconformances, this had not been the intent of the procedure set up in their Quality Control Manual. As the nonconformance reports had been reviewed by each of the required personnel, they stated they felt that they had complied with their procedure.

Mr. Mitchell, the Waldinger Assistant Vice-President, Sheet Metal, was questioned regarding the alleged orders to Individual "A" to accept one hundred nonconformance reports which had been previously dispositioned as "reject" or "rework." Mr. Mitchell indicated he had taken little overview of Individual "A"'s dispositions, and had not directed him to accept any unacceptable nonconforming conditions. A signed statement regarding this discussion was obtained and is included as Exhibit V.

9. Review of Individual "A"'s Qualifications

During the visit to Waldinger Corporation, a copy of Individual "A"'s resume was obtained by the RIII Investigation Specialist. In addition, Waldinger personnel provided a copy of a telegram from the university of record in Individual "A"'s qualifications indicating that he had not attended that university, nor did the university provide a degree in mechanical engineering. As Waldinger personnel indicated that Individual "A" was not qualified for his position, an attempt was made to verify the other information on Individual "A"'s resume to determine whether he was in fact qualified to perform engineering reviews of the welding on the HVAC installations.

Attempts to verify Individual "A"'s work experience and educational background were totally unsuccessful. It appears that none of the information reflected on Individual "A"'s resume is factual.

10. Visit to Zimmer Site on April 26-27, 1979

Region III personnel returned to the Zimmer site during April 26-27, 1979, further reviewed the specification for HVAC

systems, inspected various portions of that system to confirm the results of the reinspection effort, and held discussions with WYB and licensee personnel.

During a review of site welding procedures and a discussion with site welding personnel it was found that type 6010 welding rod had been used to perform rework welding on pre-fabricated HVAC hangers (no other weld rod had been in the possession of Waldinger, Young and Bertke). The process had been reviewed by Sargent and Lundy and approved. Site personnel advised that none of the brazes of carbon steel hangers to stainless steel duct work had been inspected, as these hangers and duct work had been covered with insulating material. They advised this reinspection effort was still pending, and it was intended that the insulation would be removed from these hangers and a reinspection of the welds performed. They advised that any nonconforming conditions would be dispositioned and followed through as per their Quality Control program. Discussion indicated that during the initial fabrication of the brazes of stainless steel to carbon steel, no procedure nor qualification existed for such a brazing procedure.

A review of pertinent documents and discussion with site personnel indicated that installation and inspection procedures related to concrete expansion anchors had been revised by Sargent and Lundy. Revisions to the specification, controlled by Design Document Changes (SLM-528, SLM-453) had been initiated to change the imbedment depth and acceptable manufacturers for concrete wedge anchors (self-drilling anchors were designated as no longer acceptable). Site personnel advised installation of concrete anchors had been halted, and that a reinspection of already accomplished installations was still pending. They advised that the identification of this problem was related to earlier NRC identified problems related to installation of concrete expansion anchors on pipe hangers and snubbers.

The site personnel advised that inspections on the HVAC systems within the reactor containment had not been performed as yet, largely due to design changes made or pending on this equipment. Portions of the containment systems remain to be fabricated.

11. Observation of Duct Hangers

The inspectors observed the hangers supporting chemical laboratory duct work hangers, representative of stainless steel ducts. Typical hanger H143 supports the exhaust duct work from

the chemical laboratory to the laboratory exhaust filter IVL04S (Drawing No. 157, Sheet 1). This portion of the duct work is fabricated from stainless steel type 304 material. The hanger drawing specifies the duct work to be attached to the hanger with intermittent 1/16 inch size welds, 1 1/2 inches long at 6 inches center to center. Records indicate that welding procedure specification (WPS) W-1-18 revision 0, dated January 13, 1975, was used. Review of WPS W-1-18 indicates it qualifies a carbon metal-arc torch process to join ASTM A-36 (carbon steel) to ASTM A-527 (sheet metal) with silicone bronze filler material type ASME SFA5.7. The inspectors stated, and the licensee acknowledged that though this procedure was qualified to the 1974 ASME Section IX code and approved by Sargent and Lundy, there was no evidence that the procedure was tested with a stainless steel material type 304. The inspector stated an appropriate qualified procedure, reviewed and approved by Sargent and Lundy, was apparently not available at the time the stainless steel duct hanger was installed, and this was an item of noncompliance contrary to 10 CFR 50, Appendix B, Criterion IX requirements. The contractor stated that the insulation which had been applied to the hangers supporting stainless steel duct work will be removed and the hangers inspected. At this time, an approved WPS to weld stainless steel type 304 material to ASTM A-36, has not been approved.

12. Review of Audits

The following audits performed by CG&E personnel of activities by Waldinger, Young and Bertke were reviewed:

- a. Field audit report 213 dated December 5, 1978 indicates that WYB's compliance to ANSI 45.2.6 was verified by reviewing the training records of inspection personnel. No adverse findings were identified.
- b. Field audit report 226 dated March 13, 1979, indicates that the following were verified: (1) procedure qualifications, (2) AWS welder qualifications and maintenance of records, (3) ASME welder performance qualifications and maintenance of records, (4) welding performed by WYB to verify that it was within the parameters of their qualifications.
- c. Field audit report 227 documents an audit performed on March 21, 1979 to establish confidence in the acceptability of essential HVAC hangers located in the main

control room, constructed, installed, inspected and accepted by WYB. The installation of five hangers was verified and determined acceptable. No adverse findings were identified.

- d. Audits performed by corporate offices. Two corporate QA audits were performed by the Waldinger Quality Assurance organization in 1977. (1) An audit was performed by three auditors from the Des Moines corporate office on May 6, 1977 to verify implementation of the WYB QA Manual dated February 25, 1975 and specification H-2298 Revision R. The audit identified minor deficiencies and suggested suitable corrective recommendations.

(2) An audit was performed by the Des Moines corporate QA auditor on November 17-18, 1977, to verify the implementation of the requirements described within the QA/QC procedure. One of the items identified related to drawing/document control records Form 2175 (identified in the May audit) not being followed. The auditor recommended not to issue procedure revision 3 for FQCP 6.1, since Form 7974 identified with procedure FQCP 6.1, revision 2, was currently being used with Appendix A of the procedure.

The WYB personnel onsite stated that audits were not performed during calendar year 1978. The inspectors informed the licensee and WYB personnel that failure to conduct annual audits to verify compliance with all aspects of the Quality Assurance program and to determine the effectiveness of the program was contrary to the requirements of 10 CFR 50, Appendix B, Criterion XVIII.

During further review of the specification for HVAC equipment, it was noted that various materials have been specified for gaskets and flexible connections. However, it was observed that while these materials were designated as radiation resistant, no specification for the degree of radiation resistance, nor the expected radiation exposure of these materials during the design basis accident had been incorporated into the specification.

Form 320, an attachment to HVAC specification H-2298, in Article 3.7 instructs the contractor to use radiation resistant gasket material. There is no requirement for the contractor to supply certificates of conformance that the gasket material will withstand radiation, or temperature variations and adverse environment without deleterious affects. The design basis

radiation levels are given in Table 3.11.4 of the Zimmer FSAR. Furthermore, flexible connections and sealants which will have to function after exposure to radiation have not been addressed in the design specification. The inspectors informed the licensee that the design parameters specified in Table 3.11.4 of the Zimmer FSAR have not been translated into the design specification and that this was another sample of a noncompliance, being contrary to the requirements of 10 CFR 50, Appendix B, Criterion III.

13. Discussion with Waldinger Site Quality Control Personnel

Discussions were held with Waldinger Site Quality Control personnel regarding the various documents which had been dispositioned or otherwise authorized by Individual "A". RIII personnel advised that since his qualification as an engineer was highly questionable, they could not accept any site document bearing his signature as an engineer. Waldinger personnel provided a memo which indicated all documents bearing dispositions or engineering decisions by Individual "A" had been or were in the process of being retrieved from their system. This memo indicated that they had found that 11 such documents had been submitted to Sargent and Lundy, but not yet approved and were being retrieved. Site personnel advised that all documents bearing his signature would be removed from the system, reviewed, and resubmitted for proper dispositions.

14. Exit Interview

On April 27, 1979, the investigators held an exit interview with Cincinnati Gas and Electric personnel. The findings of the investigation, including the items of noncompliance identified were discussed, and the licensee acknowledged the findings. The licensee was advised that the allegations made by Individual "A" basically reflected problems which had been previously identified by the NRC. It was noted that reinspection effort had not been concluded and there remained a large amount of rework and repair to correct identified deficiencies, and this ongoing program would be the subject of further review during routine NRC inspections.

15. Contact with Individual "A" on May 2, 1979

Individual "A" was contacted by the RIII Investigation Specialist on May 2, 1979, the findings of the investigation were discussed. Individual "A" was advised of the RIII review of his qualifications,

and he stated that personnel of the Waldinger Corporation had been aware he did not have an engineering degree when they hired him. This remark was not considered factual as documentary evidence provided by Waldinger indicated that they had questioned his qualifications, which they would not have done had they been knowledgeable of his lack of an engineering degree.

Individual "A" stated that he did have work experience in welding and continued to indicate he was knowledgeable in this field. He could not adequately explain the information developed by the RIII investigator during the review of information contained in his resume.

Attachment: Exhibits I-V

CONCERNS REGARDING ZIMMER 1

During an interview conducted in the Nuclear Regulatory Commission's Region II office in Atlanta, Georgia on March 21, 1979, the individual being interviewed made allegations regarding activities associated with the installation of ventilation systems, including ducts, hangers and supports, by the Waldinger Corporation and others at Cincinnati Gas and Electric's Zimmer 1 nuclear power plant.

The individual alleged that the following were contrary to regulatory requirements and the provisions of the licensee's and Waldinger's QA manuals.

1. Welding has been performed on safety-related ventilation systems or components without appropriate procedures covering the work performed. In some cases, procedures had not been written and in other cases the written procedures did not meet the standards specified in design documents. In one specific case, carbon steel and stainless steel were welded together using a type 6010 weld rod.
2. Welder qualification records are not being maintained for some individuals performing welding on safety-related ventilation systems or components and those that are maintained may have been falsified in that weld test coupons may not have been made by the welder indicated.
3. Modifications have been made to hangers for safety-related ventilation system ducts without prior design change review and approval and without subsequent documentation of the change. Examples include notching of angle iron, and cutting and rewelding.
4. Identification and disposition of nonconforming work in safety-related ventilation systems is not being accomplished in accordance with the QA program. Specific deviations from the program include:
 - a. Preparation of punchlists by Waldinger QC inspectors which are given to the construction manager for resolution, rather than preparation of inspection reports which would be processed as nonconformances.
 - b. Repair and rework proceeding without written procedures covering the work performed and before the required approvals have been obtained regarding any recommended disposition of the nonconforming work.
 - c. The Waldinger QA Manual states that Nonconformance Report disposition will be determined by the Material Review Board;

however, there is only one individual assigned to the Board and a member of Waldinger management instructed that individual to change his recommended dispositions of "rework" or "repair" to "accept as is" on approximately 100 nonconformance disposition sheets and the individual complied.

- d. QC inspection reports documenting nonconformances may have been changed to indicate acceptable inspection results without the nonconformances being corrected.
5. The Waldinger on-site QA/QC organization does not have the required independence in that the President of Waldinger issued a memorandum recently which requires the site QA/QC organization to report to the Waldinger Site Project Manager rather than directly to the Corporate QA Manager.
6. Expansion anchors used for bolting safety-related ventilation system hangers and supports to concrete have not been installed properly.

I, Individual "B", make the following voluntary statement to James Foster, who has identified himself to me as an Investigation Specialist of the NRC. I understand that I do not have to make a statement, and that any statement I do make may be used in legal proceedings.

I have been employed by Waldinger, Young, and Bertke at the Zimmer site since May 13, 1975. A small group of the original welders (3-4) were tested in the Cincinatti shop of Young & Bertke, with Gladstone Labs examining the test coupons. Other welders were tested at the Zimmer site and test coupons examined by Peabody Testing. These tests have been properly performed. No welder was qualified through use of another welder's test piece. Site management would not allow such a practice.

I have read this statement consisting of one page and made corrections where necessary. It is a true representation.

Witness
James E. Foster
4/12/79

Signed
Individual "B" 4-12-79

Exhibit II

I, Individual "C", make the following voluntary written statement to James E. Foster, who has identified himself to me as an Investigation Specialist of the NRC. I understand that I do not have to make a statement, and any statement I do make may be used in legal proceedings.

I have observed welder coupon fabrication (qualification coupons) by welders of Waldinger, Young & Bertke at the Zimmer site since April 23, 1975. This qualification testing has been properly performed, and no welder has welded another welder's coupon.

I have read this statement, consisting of one page and made corrections where necessary. It is a true representation.

Signed

Individual "C" 4-12-79

Witness

James E. Foster
4/12/79

Exhibit III

499 305

Waldinger Memo of 12/28/78

"SHEET METAL OPERATIONS AND QA/QC RELATIONSHIP NUCLEAR POWER PLANTS"

The Sheet Metal Operations Division and Quality Assurance/Quality Control departments of the Waldinger Corporation are separate entities with different functional responsibilities, but a common goal, i.e., the performance and completion of sheet metal contracts on nuclear power plants at a profit, all in accordance with the contract documents and specified quality standards. It is, therefore, necessary that the responsibilities and authority of each be understood and adhered to.

The Waldinger Corporation normally enters into one contract, and one contract only, with the owner or his representative. That contract places the undivided responsibility on the Waldinger Corporation for the attainment of the foregoing goals, and must, in the best interest of the owner or his representative and the Waldinger Corporation, remain undivided.

Accordingly, the profit responsibility and responsibility and authority for accomplishment of all of our contractual obligations rests with the President of the Company and, as is customary, is delegated through normal channels to the Waldinger Corporation's Project Manager on site.

It is, therefore, expected and required, that Quality Assurance/Quality Control respond promptly, reasonably, and where possible, affirmatively, to any and all requests, directives, etc. by the Project Manager.

While it is the intent of this policy to create a unified harmonious organization dedicated to the aforementioned goals, it is not the intent that Quality Assurance/Quality Control be inhibited, or in any way limited, in its ability to monitor and assure compliance with the contract documents.

Accordingly, it is expected and required that the Project Manager refrain from making any requests or demands on Quality Assurance/Quality Control that would in any way jeopardize, compromise, or inhibit the effectiveness or integrity of the Quality Assurance/Quality Control effort or program, as required and described by the contract documents.

It is further expected and required that, in the event Quality Assurance/Quality Control feels that a request or demand made by Operations would in fact jeopardize, compromise or inhibit the effectiveness or integrity of the Quality Assurance/Quality Control effort or program, as required and described by the contract documents, then they (QA/QC) will exercise independent judgement in determining the appropriate course of action. In any event, in such circumstances Quality Assurance/Quality Control will promptly notify the Project Manager and the Waldinger Corporation's Corporate Quality Assurance Manager of their (QA/QC) intended action, and confirm same in writing.

Upon receipt of such notification, the Corporate Quality Assurance Manager will promptly attempt to resolve the problem with the Assistant Vice President - Nuclear Sheet Metal. If resolution is not reached by this means, the Quality Assurance Manager must notify the President, who will make an independent determination.

The latter course of action is required in order to comply with ASSI, N45., 2. Paragraph 3, which states in part, "The person (Corporate Quality Assurance Manager) or organization (the Waldinger Corporation Quality Assurance/Quality Control Department) responsible for defining and measuring the overall effectiveness of the Quality Assurance program shall be designated, shall be sufficiently independent from the pressures of production, shall have direct access to responsible management at a level where appropriate action can be required."

Typed copy of letter dated 12/28/78
(original copy not utilized due to
copy quality).

Enclosure IV
Page 2 of 2

499 307



THE WALDINGER CORPORATION

2501 BELL AVENUE / P.O. BOX 1612 / DES MOINES, IOWA 50321 / 615 / 264-1277

I, Gerald L. Mitchell, make the following voluntary written statement to James C. Foster, who has identified himself to me as an Investigation Specialist of the NRC. I understand that I do not have to make a statement, and any statement I do make may be used in legal proceedings.

I am presently Assistant Vice President, Sheet Metal, for The Waldinger Corporation. In this capacity, I supervised the work of Individual "A".

I had little input to the decisions made by Individual "A" in his dispositions of nonconformance reports.

I did not direct Individual "A" to destroy already dispositioned nonconformance reports (dispositioned as reject or rework) and substitute accept-as-is dispositions.

I did counsel Individual "A" that minor or marginal defects could be accepted if acceptable to the Architect-Engineering firm for the facility.

I have read this voluntary statement consisting of one page, and made corrections where necessary. It is a true representation.

Gerald L. Mitchell

4-18-79
Date

WITNESS

4-18-79

Exhibit V

499 308

CONCERNS REGARDING ZIMMER 1

During an interview conducted in the Nuclear Regulatory Commission's Region II office in Atlanta, Georgia on March 21, 1979, the individual being interviewed made allegations regarding activities associated with the installation of ventilation systems, including ducts, hangers and supports, by the Waldinger Corporation and others at Cincinnati Gas and Electric's Zimmer 1 nuclear power plant.

The individual alleged that the following were contrary to regulatory requirements and the provisions of the licensee's and Waldinger's QA manuals.

1. Welding has been performed on safety-related ventilation systems or components without appropriate procedures covering the work performed. In some cases, procedures had not been written and in other cases the written procedures did not meet the standards specified in design documents. In one specific case, carbon steel and stainless steel were welded together using a type 6010 weld rod.
2. Welder qualification records are not being maintained for some individuals performing welding on safety-related ventilation systems or components and those that are maintained may have been falsified in that weld test coupons may not have been made by the welder indicated.
3. Modifications have been made to hangers for safety-related ventilation system ducts without prior design change review and approval and without subsequent documentation of the change. Examples include notching of angle iron, and cutting and rewelding.
4. Identification and disposition of nonconforming work in safety-related ventilation systems is not being accomplished in accordance with the QA program. Specific deviations from the program include:
 - a. Preparation of punchlists by Waldinger QC inspectors which are given to the construction manager for resolution, rather than preparation of inspection reports which would be processed as nonconformances.
 - b. Repair and rework proceeding without written procedures covering the work performed and before the required approvals have been obtained regarding any recommended disposition of the nonconforming work.
 - c. The Waldinger QA Manual states that Nonconformance Report disposition will be determined by the Material Review Board;

however, there is only one individual assigned to the Board and a member of Waldinger management instructed that individual to change his recommended dispositions of "rework" or "repair" to "accept as is" on approximately 100 nonconformance disposition sheets and the individual complied.

- d. QC inspection reports documenting nonconformances may have been changed to indicate acceptable inspection results without the nonconformances being corrected.
5. The Waldinger on-site QA/QC organization does not have the required independence in that the President of Waldinger issued a memorandum recently which requires the site QA/QC organization to report to the Waldinger Site Project Manager rather than directly to the Corporate QA Manager.
6. Expansion anchors used for bolting safety-related ventilation system hangers and supports to concrete have not been installed properly.

I, Individual "B", make the following voluntary statement to James Foster, who has identified himself to me as an Investigation Specialist of the NRC. I understand that I do not have to make a statement, and that any statement I do make may be used in legal proceedings.

I have been employed by Waldinger, Young, and Bertke at the Zimmer site since May 13, 1975. A small group of the original welders (3-4) were tested in the Cincinatti shop of Young & Bertke, with Gladstone Labs examining the test coupons. Other welders were tested at the Zimmer site and test coupons examined by Peabody Testing. These tests have been properly performed. No welder was qualified through use of another welder's test piece. Site management would not allow such a practice.

I have read this statement consisting of one page and made corrections where necessary. It is a true representation.

Witness

James E. Foster
4/12/79

Signed

Individual "B"

4-12-79

Exhibit II

499 311

I, Individual "C", make the following voluntary written statement to James E. Foster, who has identified himself to me as an Investigation Specialist of the NRC. I understand that I do not have to make a statement, and any statement I do make may be used in legal proceedings.

I have observed welder coupon fabrication (qualification coupons) by welders of Waldinger, Young & Bertke at the Zimmer site since April 23, 1975. This qualification testing has been properly performed, and no welder has welded another welder's coupon.

I have read this statement, consisting of one page, and made corrections where necessary. It is a true representation.

Signed

Individual "C" 4-12-79

Witness

James E. Foster
4/12/79

Exhibit III

Waldinger Memo of 12/28/78

"SHEET METAL OPERATIONS AND QA/QC RELATIONSHIP NUCLEAR POWER PLANTS"

The Sheet Metal Operations Division and Quality Assurance/Quality Control departments of the Waldinger Corporation are separate entities with different functional responsibilities, but a common goal, i.e., the performance and completion of sheet metal contracts on nuclear power plants at a profit, all in accordance with the contract documents and specified quality standards. It is, therefore, necessary that the responsibilities and authority of each be understood and adhered to.

The Waldinger Corporation normally enters into one contract, and one contract only, with the owner or his representative. That contract places the undivided responsibility on the Waldinger Corporation for the attainment of the foregoing goals, and must, in the best interest of the owner or his representative and the Waldinger Corporation, remain undivided.

Accordingly, the profit responsibility and responsibility and authority for accomplishment of all of our contractual obligations rests with the President of the Company and, as is customary, is delegated through normal channels to the Waldinger Corporation's Project Manager on site.

It is, therefore, expected and required, that Quality Assurance/Quality Control respond promptly, reasonably, and where possible, affirmatively, to any and all requests, directives, etc. by the Project Manager.

While it is the intent of this policy to create a unified harmonious organization dedicated to the aforementioned goals, it is not the intent that Quality Assurance/Quality Control be inhibited, or in any way limited, in its ability to monitor and assure compliance with the contract documents.

Accordingly, it is expected and required that the Project Manager refrain from making any requests or demands on Quality Assurance/Quality Control that would in any way jeopardize, compromise, or inhibit the effectiveness or integrity of the Quality Assurance/Quality Control effort or program, as required and described by the contract documents.

It is further expected and required that, in the event Quality Assurance/Quality Control feels that a request or demand made by Operations would in fact jeopardize, compromise or inhibit the effectiveness or integrity of the Quality Assurance/Quality Control effort or program, as required and described by the contract documents, then they (QA/QC) will exercise independent judgement in determining the appropriate course of action. In any event, in such circumstances Quality Assurance/Quality Control will promptly notify the Project Manager and the Waldinger Corporation's Corporate Quality Assurance Manager of their (QA/QC) intended action, and confirm same in writing.

Upon receipt of such notification, the Corporate Quality Assurance Manager will promptly attempt to resolve the problem with the Assistant Vice President - Nuclear Sheet Metal. If resolution is not reached by this means, the Quality Assurance Manager must notify the President, who will make an independent determination.

The latter course of action is required in order to comply with ASSI, N45., 2. Paragraph 3, which states in part, "The person (Corporate Quality Assurance Manager) or organization (the Waldinger Corporation Quality Assurance/Quality Control Department) responsible for defining and measuring the overall effectiveness of the Quality Assurance program shall be designated, shall be sufficiently independent from the pressures of production, shall have direct access to responsible management at a level where appropriate action can be required."

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Enclosure IV
Page 2 of 2

499 314



THE WALDINGER CORPORATION

2601 BELL AVENUE / P.O. BOX 1612 / DES MOINES, IOWA 50321 / 615 / 294-1911

I, Garald L. Mitchell, make the following voluntary written statement to James C. Foster, who has identified himself to me as an Investigation Specialist of the NRC. I understand that I do not have to make a statement, and any statement I do make may be used in legal proceedings.

I am presently Assistant Vice President, Sheet Metal, for The Waldinger Corporation. In this capacity, I supervised the work of Individual "A".

I had little input to the decisions made by Individual "A" in his dispositions of nonconformance reports.

I did not direct Individual "A" to destroy already dispositioned nonconformance reports (dispositioned as reject or rework) and substitute accept-as-is dispositions.

I did counsel Individual "A" that minor or marginal defects could be accepted if acceptable to the Architect-Engineering firm for the facility.

I have read this voluntary statement consisting of one page, and made corrections where necessary. It is a true representation.

Garald L. Mitchell

4-18-79
Date

WITNESS

4-18-79

Exhibit V

499 315