

UNITED STATES NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT

REGION III

Report of Construction Inspection

IE Inspection Report No. 050-358/76-11

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

William H. Zimmer Nuclear Power Station  
Moscow, Ohio

License No. CPPR-88  
Category: A

Type of Licensee: BWR GE 810 MWe

Type of Inspection: Announced

Dates of Inspection: December 28, 29 and 30, 1976

Principal Inspector: *C. M. Erb*  
C. M. Erb

1/11/77  
(Date)

Accompanying Inspector: *W. Key*  
W. Key

1/11/77  
(Date)

Other Accompanying Personnel: None

Reviewed By: *E. L. Jordan*  
E. L. Jordan, Acting Chief  
Engineering Support Section

1/16/77  
(Date)

## SUMMARY OF FINDINGS

### Inspection Summary

Inspection on December 28-30, (76-11): Review of QA records and completed reactor building structure, containment post tensioning procedures, history and status of stuck tendon, observation of activities relative to installation of containment penetrations, review of penetration records, observation of activities relative to reactor coolant pressure boundary piping and review of installed piping records. One item of noncompliance identified relative to weld rod control.

### Enforcement Items

The following item of noncompliance was identified during the inspection.

### Infraction

Contrary to 10 CFR 50, Appendix B, Criterion VIII and Kaiser Procedure SPPM 3.3.R4, Paragraph 6.9, partially burned and unburned weld rod was found lying outside containers or ovens in several locations in the plant. (Paragraph 1, Section 1, Report Details)

### Licensee Action on Previously Identified Enforcement Items

- A. Control of General Electric Company (GE) Drawings  
(IE Inspection Report No. 050-358/76-07)

This matter remains open. Corrective action should be completed the week of January 17, 1977.

- B. Reactor Controls Inc. (RCI) QA Manual  
(IE Inspection Report No. 050-358/76-07)

This matter is open. RCI QA Manual has been revised and is still being reviewed by CG&E.

- C. Kaiser Engineering (KEI) Maintenance Records  
(IE Inspection Report No. 050-358/76-07)

This matter is still open. Corrective action has been completed and will be reviewed during the next IE Inspection.

- D. Asbestos Blanket - Chloride Content  
(IE Inspection Report No. 050-358/76-10)

Corrective action has been taken, and will be reviewed during the next IE inspection.

- E. Bristol Steel and Iron Works (BS&IW) QC Personnel Qualification Data (IE Inspection Report No. 050-358/76-10)

Qualification data for Bristol QC personnel was reviewed by the inspector and is acceptable. This matter is resolved.

Other Significant Items

- A. Systems and Components

Area in containment wall concrete where prestress tendon was stuck was opened up and awaiting further fix information from Sargent and Lundy Architect Engineer. (Paragraph 1, Section 1, Report Details)

- B. Facility Items (Plans and Procedures)

1. Zimmer plant is reported to be 65% complete.
2. Site personnel number over 1,800 at present time.

- C. Managerial Items

Cincinnati Gas and Electric Company (CG&E) Quality Assurance personnel have moved to the site. Two additions to this group are expected in the near future.

- D. Noncompliance Identified and Corrected by the Licensee

None.

- E. Deviations

None.

- F. Status of Previously Identified Unresolved Items

1. Conduit Material. (IE Inspection Report No. 050-358/76-10)  
Item not inspected and remains open.
2. Design Document - DLE-115. (IE Inspection Report No. 050-358/76-10)  
Item not inspected and remains open.

3. Raceway Loading Procedures. (IE Inspection Report No. 050-358/76-10)

This item is still open.

4. Pipe Hanger Installation Procedure. (IE Inspection Report No. 050-358/76-07)

This item was not inspected and is open.

5. Misrouted Class 1E Cables (IE Inspection Report No. 050-358/76-10)

This item was not inspected and is open.

#### Management Interview

- A. The following persons attended the interview held at the conclusion of the inspection.

##### Cincinnati Gas and Electric Company (CG&E)

- B. K. Culver, Principal Construction Engineer
- W. W. Schwiers, Principal QA and Standards Engineer
- H. B. Gear, Site Construction Manager
- R. P. Ehas, QA and Standards
- R. L. Wood, QA Engineer
- J. F. Weissenberg, QA Engineer

##### Kaiser Engineering (KEI)

- R. D. Sahlberg, Project Manager
- W. Kacer, QA Engineer

- B. Matters discussed and comments on the part of management were as follows:

1. The inspectors stated the purpose of this inspection had been to review records and observe work activities associated with containment prestressing, containment penetrations, reactor coolant pressure boundary piping and structural installation in a seismic Class 1 building.
2. The inspectors discussed noncompliance items, unresolved items, and the status of previously reported noncompliance and unresolved items documented in the Summary of Findings section of this report.
3. The inspectors stated, that during this inspection they had noticed a lack in housekeeping around the site and that more attention should be directed in this direction and that

this would be observed in more detail during the next inspection. Accumulation of wood, rags and paper was particularly bad in the reactor pit and spent fuel pool areas. The licensee acknowledged the inspectors comments and stated that work had already begun on housekeeping.

4. The inspector stated one item of noncompliance was found in violation of Criterion VIII and Kaiser Standard Practice SPPM 3.3R4, when uncontrolled weld rod, both burned stubs and unburned were found in three different areas of the reactor building. (Paragraph 1, Section 1, Report Details)
5. The inspector stated that he had examined the area of the stuck tendon and noted that no rebar had been cut in order to expose the problem area. The licensee stated that engineering (S&L) were initiating the repair procedure for this area and nothing further would be done until they have received a repair package from S&L.
6. The inspector stated that electrical cable trays at the 570 foot level were being used as construction aids for storing concrete blocks, wood and buckets of concrete. The licensee agreed that abuse of trays by crafts people should not be allowed.

The inspector stated that protection of motor control centers at the 546 foot level and switchgear at the 525 foot level was inadequate, since doors were open to dust and dirt, and there was no covering over the 2 x 4 framework, which would protect somewhat from impact of other items being moved or accidentally dropped. The licensee said, they would investigate this situation, both for electrical panels stored in their permanent location or temporary storage.

- C. On December 12, 1976, a meeting was held by Mr. T. E. Vandell the assigned NRC Project Inspector, with Mr. W. W. Schwierts of CG&E, and with Mr. H. B. Gear of Gearco Incorporated. Discussions centered around the CG&E implemented QA program, planned modifications envisioned by Mr. Schwierts, the newly appointed Principal Quality Assurance and Standards Engineer, and the utilization of the program by Gearco, Inc., the newly engaged Site Construction Manager. The inspector indicated that the planned modifications appeared to be an improvement in the program and that the utilization of the QA program by the Site Construction Manager appeared appropriate.

REPORT DETAILS

Section I  
Prepared by C. M. Erb

Persons Contacted

The following persons in addition to those in the management interview were contacted during this inspection.

Kaiser (KEI)

M. Lowe, Quality Control - NDT  
C. Schroeder, Quality Assurance Engineer  
D. Kramer, QA Engineer - Civil

Inland Ryerson Company (InRyCo)

R. Sturm, Site QA Supervisor

Bristol Steel and Iron Works (BS&IW)

H. W. Whigham, Site Quality Assurance

Results of Inspection

1. Noncompliance - Weld Rod Control

Criterion VIII of Part 50, Appendix B states that, "Measures shall be established for the identification and control of materials, parts and components, . . . assemblies." It further states that these identification and control measures shall be designed to prevent the use of incorrect or defective materials, parts and components.

Kaiser procedure SPPM 3.3R4, paragraph 6.9 states that, damaged and discarded welding materials, stub ends etc., must be cleared from work areas. Buckets will be located throughout the site for discards.

Contrary to the above Criterion VIII and commitment to SPPM 3.3R4, uncontrolled weld rod was found at three different levels in the reactor building. These weld rods were type 7018 coated electrode and one uncoated electrode.

2. Containment - Post Tensioning

No tendons were tensioned during this inspection because of a broken part in the positioning device. At the time of this inspection, 25 vertical tendons and 3 horizontal tendons had not been installed. Intermediate greasing had been accomplished on most of the tendons, but final greasing had not been performed since it follows tensioning. The InRyCo QA Manual, Revision June 13, 1975 was approved by CG&E. Procedures and Certifications of Materials were acceptable to InRyCo specifications as follows:

<u>Material</u>	<u>Spec. No.</u>	<u>Chemical Content</u>	<u>Laboratory</u>
Grease, Nuclear Grade	2090P	Accept. chlorides, sulfur	H.C. Nutting
Tendon wire	A421-65	---	---

The button heading requirements are outlined in Criterion 1610. The grease in the tank must be at 140°F minimum and the overflow grease after pumping through the sheath must be at 90°F minimum. The sheaths will be filled one at a time with grease. Stressing will be performed from one end of the verticals and from both ends of the horizontal tendons.

NCR No. 546-F4 was issued to cover repair action on stuck tendon No. 32BA which required removing concrete from the outside of containment to a depth of about 16" to uncover the stuck tendon area of the sheath. The 90 wire tendon was removed, one wire at a time and scrapped. The replacement of about 2 feet of sheath and concrete grouting required will be developed by the AE in order to remove the nonconformance.

3. Reactor Building - Observation of Work, Review Procedures and Records

The NDT results and records on Class 1 structural fabrication were examined and found to conform to Specification 2174 and AWS D1.1-72. Following items fabricated in the shop by Bristol were examined:

<u>Identification No.</u>	<u>NDT</u>	<u>Type</u>	<u>Accept</u>
17-70C2 Column	Radiographs	full penetrations	S&L
17-70C1 A Face	"	"	"
B Face	"	"	"
C Face	"	"	"

The fillet welds made at the site by Bristol were inspected visually and were checked with a fillet gauge. The structural columns

and beams were certified to meet specification ASTM A572 Grade 50 and plate used in connections was certified to ASTM A36. Bolts were certified to meet ASTM A325 or A490. Skidmore equipment was used to determine bolting tension-torque relationship and results were audited by Kaiser. Shielded Metal Arc welding was used at the site and procedures and welders were qualified to AWS D1.1-74.



## REPORT DETAILS

Section II  
Prepared by W. J. Key

### Persons Contacted

The following personnel in addition to those listed under the Management Interview section of this report, were contacted during this inspection.

#### Kaiser Engineers Incorporated (KEI)

C. Yohe, Assistant Chief Inspector  
D. Kramer, Civil Q.A. Engineer  
M. Franchuck, Mechanical Q.A. Engineer  
J. Magner, Welding Engineer  
K. Woodruff, Lead Electrical Engineer  
W. Ferree, Warehouse Manager  
M. Davis, Assistant Warehouse Superintendent

#### Foothill Electric Company (Foothill)

S. Kasper, Associate Engineer  
W. Cunningham, Maintenance Foreman

### Results of Inspection

#### 1. Observation of Containment Penetration Work Activities

The inspector observed installed electrical and piping penetrations in the Containment, and determined that installation had been performed in accordance with specifications and installation procedures, and that monthly maintenance and surveillance checks were being conducted and recorded.

#### 2. Containment Penetration Quality Records

The inspector reviewed the following containment penetration records and determined them to be acceptable.

- a. Sargent and Lundy (S&L) Specification H-2167 Titled, Specification for Reactor Containment Structure Electrical Penetration Assemblies.
- b. Cincinnati Gas and Electric Company (CG&E) purchase order No. 2112 and No. 2112A, issued to Conax Corporation.

- c. Quality records for penetration S/N-79 S&L equipment No. 1AP50EE, Neutron Monitor Penetration.
- d. Quality records for penetration S/N-75 S&L equipment No. 1AP50EC.
- e. Leakage pressure test and visual inspection record, Part No. 7218-10003-01 S/N-79.
- f. Conax prototype test certification for E.P.A.
- g. Final documentation checklist, part No. 7218-10003-01.
- h. Manufactures data report, Form N-2 for nuclear part and appurtenance Canister Assembly.
- i. McKay, Material Test report for 5/32" E7018 electrode, Heat No. 03R005, laboratory report No. 9076-2241.
- j. McKay, Material Test report for 1/8" E7018 electrode, Heat No. 04T931, laboratory report No. 9076-2223.
- k. Bethlehem Steel Corporation, Test and Analysis report for plate material ASME, SA516 GR.70, Heat No. 802N56650, S/N-N30634.
- l. Youngstown Sheet and Tube Company, certificate of test for seamless pipe ASTM-A333-722 GR.6 Heat No's. 27630 and 32694.
- m. Conax, Welder Qualification records for stamp cx-1.
- n. Leakage, Pressure Test and Visual inspection report, Part No. 7218-10004-01, S/N-75.
- o. KEI, installed equipment maintenance record sheets, Form 180.1 and 180.2 attached to each electrical penetration.

3. Penetration Drawings (Conax)

The inspector reviewed the following electrical penetration drawings, and determined them to be acceptable.

- a. L.V.P. Penetration Assembly, Dwg. No. 7218-10000, Conax penetration designation 2A and 2B.

- b. Low Voltage Containment Service Penetration, Assembly, Dwg. No. 7218-10001, penetrations 3A and 3B.
- c. M.V.P. Penetration Assembly, Dwg. No. 7218-10005, penetrations 1A and 1B.
- d. L.V. Instrumentation Service, Dwg. No. 7218-10002, penetrations 4A and 4B.
- e. L.V. Neutron Monitoring Assembly, Dwg. No. 7218-10003, penetrations 5A thru 5D.
- f. Control Rod Position Indication, L.V. Penetration Assembly, Dwg. No. 7218-10004, penetrations 6A thru 6C.

4. Procedures and Reports (Conax)

The inspector reviewed the following Conax procedures and reports and determined them to be acceptable.

- a. Procedure No. IPS-108, Revision A, titled, Factory Test Procedure for Electrical Penetration Assemblies.
- b. Procedure No. IPS-174, Revision A, titled, Packaging, Shipping and Storage for Electrical Penetration Assemblies.
- c. Quality Control Instruction QCIN 8.2.3 Subject, Solvent Removable Visible Dye Penetrant.
- d. Procedure, W.P. 14-12-02. Titled, Welding Procedure Specification for Shielded Metal Arc Welding of Carbon to Carbon Steel.
- e. Welding Procedure Qualification Test report for W.P. 14-12-02.
- f. Charpy Impact Test report for W.P. 14-12-02.
- g. Radiographic Test report for W.P. 14-12-02.
- h. Procedure W.P. 14-13-01. Titled, Welding Procedure Specification for Shielded Metal Arc Welding of Carbon Steel to Stainless Steel.
- j. Welding Procedure Qualification Test report for W.P. 14-13-01.
- k. Tensile Test report for W.P. 14-13-01, samples No. 1 and 6, Guided Bend Test report for samples No. 2, 3, 4 and 5.

5. Piping Penetrations Observations

The inspector observed the following pipe penetrations installed and welded to the containment penetration sleeves. Since installation of pipe penetrations is performed in accordance with the requirements of the piping specification the same welding and installation procedures are applicable.

- a. Penetration M-27, Reactor Water Cleanup line No. 1RT0106, welded to MK-11 spool piece.  
Weld Data Sheet No. 8672.  
Recorded on ISO No. PSK-1RT, sheet 4, Revision 2.
- b. Penetration M-11, RHR system.  
Weld Data Sheet No. A10350.  
Recorded on ISO No. PSK-1RH, sheet 13, Revision 2.

6. Reactor Coolant Pressure Boundary Piping Quality Records

The inspector reviewed the following records of installed recirculation system piping loop, A and determined them to be acceptable.

- a. Quality Control Record Book No. 5.  
Spool piece No. 1RR01AA20-23-1, Heat No. 2P4654.  
United States Steel (USS) Material Certificate.  
Associated Piping Engineering Corporation (APEC).  
Dwg. No. 117C4779, Revision 1.  
Arco Weld metal certificate for E308 wire.  
Heat No. C1460T308.  
APEC, UT, RT and PT inspection reports.  
Deviation Disposition Request (DDR) No. 5035, was resolved.  
General Electric (GE) QC checklist.
- b. Quality Control Record Book No. 10.  
Spool Piece 1RR02BA16-26, Heat No. 335520.  
APEC, Dwg. No. 117C4782, shop sheet No. 9, Revision 4.  
GE Quality Control checklist.  
DDR's No. 5959 and 5030, were resolved.  
Weld procedure qualification certificate.  
Heat treat certificate.  
Hydrostatic test warranty.  
Welder qualification certificate.  
NDE personnel certificate.  
Certificate of Compliance.