

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

REGION III

Report No. 50-440/81-01; 50-441/81-01

Docket No. 50-440; 50-441

License No. CPPR-148; CPPR-149

Licensee: The Cleveland Electric Illuminating Company
Post Office Box 5000
Cleveland, OH 44101

Facility Name: Perry Nuclear Power Plant, Units 1 and 2

Inspection At: Perry Site, Perry, OH

Inspection Conducted: January 21-23, 1981

Inspectors: J. E. Kopplin

for F. C. Hawkins

Approved By: C. C. Williams, Chief
Projects Section 2

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Inspection Summary

Inspection on January 21-23, 1981 (Report No. 50-440/81-01; 50-441/81-01)

Areas Inspected: Control of purchased equipment and materials; procedures, work activities, and records related to the application of safety-related coatings. This inspection involved a total of 45 onsite inspector-hours by two NRC inspectors.

Results: No items of noncompliance were identified with regard to the control of purchased equipment and materials; three noncompliances were identified with regard to safety-related coatings work - (violation - inadequate procedural requirements and failure to follow procedures, seven examples - Section II; violation - inadequate control of measuring and test equipment, two examples - Section II; violation - inadequate indoctrination and training of personnel - Section II).

DETAILS

Persons Contacted

Principal Licensee Employees

- *M. Edelman, Manager, Nuclear QA Department
- *G. Groscup, Manager, Nuclear Engineering Department
- *J. Kline, General Supervising Engineer, Construction
- *W. Kacer, General Supervising Engineer, CQS
- *P. Martin, General Supervising Engineer, PQS
- *G. Leidich, CQS QA Supervisor
- B. Walrath, PQS QE Supervisor
- T. Swansiger, Procurement Coordinator, PQS
- G. Lockwood, Site Purchasing Coordinator
- J. Bahleda, Receipt Inspection Coordinator
- P. Begany, Contract Administrator, Coatings Contract
- R. Salkiewicz, Responsible Engineer, Coatings

Other Personnel

- *J. Connelly, Lead Civil Quality Engineer (GAI)
- R. Reifsnyder, Quality Inspector, CQC (KEI)
- W. Wells, Quality Assurance Manager (Metalweld)
- J. Vaspoli, Quality Assurance Supervisor (Metalweld)

NRC Personnel

- *J. Hughes, Perry Resident Inspector, RIII

*Denotes those present at the onsite exit meeting on January 23, 1981.

The inspectors also contacted and interviewed other licensee and contractor craftsmen, technical, engineering, and quality assurance personnel.

SECTION I

Prepared by J. E. Konklin

Reviewed by C. C. Williams, Chief
Projects Section 2

1. Control of Purchased Material

The inspector reviewed the licensee's system for control of materials and equipment procured by the CEI Purchasing Department. The inspection included the review of applicable site procedures to assure that they contain appropriate requirements for procuring, inspecting, storing, and releasing purchased materials and equipment; review of selected procurement documentation and other quality records related to control of purchased materials and equipment; and inspection of the storage of selected purchased items.

The procedures reviewed relative to the control of purchased materials and equipment include the following:

- a. Project Administration Procedure PAP 0401, Revision 0, dated February 16, 1979, "Procurement Control of Items and Services".
- b. PAP 0402, Revision 0, dated August 20, 1980, "Procurement of Services, Spare Parts, Miscellaneous Material, and Replacement Components".
- c. PAP 0403, Revision 0, dated August 20, 1980, "Qualified Suppliers List".
- d. PAP 1301, Revision 1, dated May 5, 1980, "Packaging, Shipping, Receiving, Storage, Maintenance and Handling Requirements".
- e. Program Quality Section Procedure PQS 1-0730, Revision 0, dated September 26, 1980, "Receiving Inspection".
- f. PQS 1-1430, Revision 0, dated September 15, 1980, "Receipt Inspection Tag Control".
- g. Construction Quality Section Procedure CQSP 2-1702, Revision 2, dated October 14, 1980, "Review and Acceptance of Contractor Documents".

The inspector then selected, at random, four Bills of Material for equipment procured by the CEI Purchasing Department. The Bills of Material selected covered two procurements from Borg-Warner Corporation and two procurements from Target Rock Corporation.

For each of the four selected procurements, the inspector located and reviewed the Master Qualified Bidders List, the Final QA Audit Report for the manufacturer, the Purchase Agreement, the Design Specification Data Sheet, the Quality Assurance Release for Purchasing, the Manufacturing Surveillance Plan, the Certificate of Inspection, the Receiving Inspection Report, and the applicable Nonconformance Reports.

Following review of the above procedures and quality records, the inspector then inspected the storage of the equipment procured under the four selected purchase orders to verify adequate storage conditions, identification and, where applicable, nonconformance tagging.

No items of noncompliance were identified during the above inspection.

2. Stop Work Imposed by CEI on Coatings Contractor

Section II of this report discusses in detail the RIII findings with regard to work being done by the site coatings contractor, Metalweld, Inc. As a result of those findings, the licensee imposed a stop work on all safety-related coatings work by Metalweld at the time of the onsite exit meeting on January 23, 1981. Region III then issued, on January 27, 1981, an Immediate Action letter confirming the voluntary stop work imposed by CEI on Metalweld, and detailing the agreed upon corrective actions to be taken by CEI prior to resumption of coatings application activities by Metalweld.

Section II

Prepared by F. C. Hawkins

Reviewed by D. W. Hayes, Chief
Engineering Support Section 1

Metalweld, Inc., of Philadelphia, Pennsylvania, is the Perry Nuclear Power Plant coatings contractor responsible for the application and first line QC inspection of Service Level I protective coatings. Metalweld assumed responsibility for the site nuclear coatings work on August 27, 1980 and is contracted directly to CEI.

This inspection consisted of a review of the Metalweld QA Manual, implementing QA/QC procedures, quality records, governing CEI specification, and the observation of in-process work/inspection activities. The detailed results of the inspection are documented in the following sections of this report.

A. Review of Quality Assurance Manual, Implementing Procedures and CEI Specification SP-64

The Metalweld QA Manual was reviewed to confirm that the applicable requirements of the eighteen criteria of Appendix B to 10 CFR Part 50 had been satisfied. In conjunction with this review, the QA/QC procedures were examined to assure that they properly detailed the methods by which the provisions of the QA Manual were implemented and that they provided appropriate inspection requirements so as to assure quality. Additionally, CEI Specification SP-64 was reviewed to assure its compatibility with Metalweld implementing procedures. The following specific observations were made.

1. CEI specification SP-64, Section 5.05.4, references ANSI N512-74, Section 10. N512-74, Section 10.10.5 in turn references SSPC-PA 2, as it relates to the required frequency of dry film thickness (DFT) inspection of coatings using magnetic gages.

The RIII inspector indicated to licensee personnel that neither the Metalweld procedures nor specification SP-64 address the DFT inspection frequency required for unique steel shapes (i.e., pipe, hangers, channels, etc.) which are frequently encountered in nuclear coating operations. The specific DFT inspection frequency criteria set forth in SSPC-PA 2 is not relevant to these types of application. This failure to establish documented instructions, procedures, or drawings for activities affecting quality is considered an item of noncompliance with 10 CFR 50, Appendix B, Criterion V as described in Appendix A of the report transmittal letter. (440/81-01-01; 441/81-01-01).

Additionally, neither the procedures nor the specification included requirements which specified the frequency of wet film thickness (WFT) inspection of coating material applied to concrete surfaces. This failure to establish the necessary documented instructions, procedures, or drawings for activities affecting quality is a further example of noncompliance as cited in the previous paragraph. (440/81-01-01; 441/81-01-01)

2. Metalweld QAP-006, Section 3.0, states that the QA and QC procedures available for use at the Perry Site, are considered controlled documents.

It was noted during the inspection, that the individual attachments to the controlled QA and QC procedures were not controlled (i.e., revision number and date). Many of the attachments constitute the formal record of inspection/test results for in-process and completed coatings work. Therefore, each must be controlled in accordance with QAP-006 so as to assure the use of correct attachments as specified by the procedure. This failure to accomplish activities affecting quality in accordance with documented instructions, procedures, or drawings is a further example of noncompliance as cited in Section II.A.1 of this report. (440/81-01-01; 441/81-01-01)

B. Observation of Work/Inspection Activities

1. Unit 1 Reactor Building Containment Dome

The RIII inspector observed in-process touch-up work on the Carbo Zinc 11 primer in the Unit 1 containment dome. QC inspection activities in the dome involved the identification of areas requiring additional work in order to meet the specification requirements.

Discussions with responsible Metalweld QC inspectors were conducted to obtain an overview of their responsibilities as first line inspectors. During the interviews, it became apparent that a base line reading on bare steel substrate had not been established and applied to the DFT measurements being taken. SSPC-PA 2 states that the base line value should be established and used to correctly yield the thickness of paint above the peaks of the surface profile when using a Type 1 (pull-off) DFT gage. Licensee personnel later confirmed that specification SP-64, through its reference of ANSI N512-74, does endorse SSPC-PA 2. This failure to accomplish activities affecting quality in the manner prescribed by SSPC-PA 2 is a further example of noncompliance as cited in Section II.A.1. of this report. (440/81-01-01; 441/81-01-01)

This portion of the inspection also involved verification of field inspection equipment control and calibration. Three Microtest

magnetic DFT gages, No. 251, 270, and 273 were inspected. Microtest gage No. 273, upon examination, appeared damaged. The gage was operable, but would not calibrate on the set of NBS thickness shims available in the field. The responsible Metalweld QC inspector stated that the gage had been damaged the previous day during use. At the time of this inspection, gage No. 273 had not yet been removed from field service or tagged to control its use as required by QAP-012.1, Sections 2.4 and 3.3. This failure to assure that instruments used in activities affecting quality are properly controlled, calibrated, and adjusted to maintain their accuracy within the necessary limits is considered an item of noncompliance with 10 CFR 50, Appendix B, Criterion XII as described in Appendix A of the report transmittal letter. (440/81-01-02; 441/81-01-02)

2. Coating Material Storage

The RIII inspector toured the Metalweld storage trailers used to house Service Level I coating materials. Recording thermometers were properly maintained in both trailers to monitor storage temperatures. Coating material containers were properly labeled to identify batch number, product designation, and date of manufacture.

The hold area for rejected coating materials was also inspected. The rejection of a one gallon kit of Carbo Zinc 11, present in the hold area, was discussed in detail with the responsible Metalweld QC inspector. The inspector stated that the material had been successfully receipt inspected to verify the material's conformance with contract/procurement documents, the adequacy and correctness of the accompanying certifications, and that the shipping carton with the affixed identity label was not damaged. He further stated that when the carton was later opened for use, the coating containers were discovered to be damaged. It was then that he attached a reject tag in accordance with QCP-005, Section 2.3. Review of the procedure revealed that QCP-005 specifies the use of reject tags as a means to control and disposition material found to be unacceptable during in-process receipt inspection. The nonconforming Carbo Zinc 11, having previously been receipt inspected, required; (1) identification, (2) control, (3) issuance of a nonconformance report in accordance with QAP-015, Nonconforming Material, Parts or Components. This failure to accomplish activities affecting quality in the manner prescribed by QAP-015 is a further example of noncompliance as cited in Section II.A.1 of this report. (440/81-01-01; 441/81-01-01)

C. Review of Quality Records

1. Daily Surveillance Records

The RIII inspector reviewed CEI Daily Surveillance Inspection Reports for January 7, 8, 10, and 15, 1981. The reports confirmed that the inspections were being performed in accordance with the site instruction Procedure Control Quality Assurance 2-1001, Revision 2.

2. Receipt of Purchased Material

Relative to receipt of purchased coating materials, the RIII inspector reviewed the material receiving records and manufacturers' material certifications for the following coating materials:

- a. Carbo Zinc 11, Part A, Batch No. 0J5536M
Part B, Batch No. 0J2131Z
- b. Carboline Thinner No. 33, Batch No. OK2071M
- c. Ameron Nu-Klad 110 AA, Batch No. 6906322

3. Control of Measuring and Test Equipment

The calibration records for two surface thermometers (No. 819 and No. 829) used as job site standards, as specified in QAP-012.1, Section 4.3, were reviewed. Section 4.3 requires that the standard thermometers be calibrated at six month intervals by an outside agency. The required calibration for thermometers No. 819 and No. 829 was properly performed on July 18, 1980 and was again due to be performed on or before January 18, 1981. At the time of this inspection, January 23, 1981, the calibration of both standard thermometers had expired. Additionally, the calibration equipment log and the calibration sticker affixed to each, incorrectly noted the required date of re-calibration as March 5, 1981. This is a further example of noncompliance as cited in Section II.B.1 of this report. (440/81-01-02; 441/81-01-02)

Additionally, the technique used by Metalweld to calibrate thermometers at the Perry site was discussed. QAP-012.1, Section 4.3, requires that thermometers be calibrated to within $\pm 2^{\circ}\text{F}$ of the standard at a minimum of three points over the range of its intended use. The responsible QC inspector stated that proper facilities to perform this calibration did not presently exist at the Perry Metalweld facilities, and that calibrations were being performed at only one point in the thermometer's range of use. This failure to accomplish activities affecting quality in the manner prescribed by QAP-012.1 is a further example of noncompliance as cited in Section II.A.1. of this report. (440/81-01-01; 441/81-01-01)

4. Qualification/Certification of Personnel

- a. The indoctrination/training and certification records for fifteen Metalweld production personnel were reviewed. The records of the personnel reviewed met the requirements set forth in QAP-002.4.3. and WP-007A.
- b. The qualification/certification and indoctrination/training records of one Level II and four Level I Metalweld QC inspectors were reviewed. The records were reviewed to verify conformance with Metalweld procedures and ANSI N45.2.6., with the following results:

- (1) QAP-002.4.1, Section 5.2, requires that, "Prior to assignment to a specific project, each QA Inspector shall undergo an indoctrination and training session in specific project requirements. . . ."

Contrary to the above, records for one inspector indicated that he performed inspections at the Perry site from September 1980 through December 22, 1980, without receiving an indoctrination/training session to highlight specific project requirements.

- (2) QAP-002.4.1, Section 5.1.3. states that, "A minimum of one month on-the-job training under the direct supervision of a Qualified Inspector shall be required for any new hire with no previous practical QC experience, prior to certification."

Contrary to the above, records for one inspector indicated that he was certified Level I, with no prior QC experience, after receiving on-the-job training from August 27, 1980 through September 5, 1980 (ten days).

These failures, noted in (1) and (2) above, to accomplish activities affecting quality in the manner prescribed by QAP-002.4.1, are further examples of noncompliance as cited in Section II.A.1 of this report. (440/81-01-01; 441/81-01-01)

Interviews were conducted with selected Metalweld QC inspectors to assess the ability of each individual to implement the Metalweld quality program in his own field of responsibility. The interviews were conducted because of the RIII inspector's concern regarding the broad Level I certification of inexperienced personnel based on an examination and one month of on-the-job training, as is allowed by QAP-002.4.1.

The RIII inspector concluded from the interviews that those personnel interfaced with have not achieved the necessary level of competency to perform the broad range of tasks for which they are assigned responsibility as Level I and Level II inspectors. This was evidenced by the inability of the inspectors to answer basic QC/QA questions which directly related to their specific assigned responsibilities. The implementation of QAP-002.4.1, concerning the waiver of education and experience requirements based on proficiency testing, does not meet the intent of ANSI N45.2.6-73, Section 3.1. This failure to provide for the indoctrination and training of personnel performing activities affecting quality as necessary to assure that suitable proficiency is achieved and maintained is considered an item of noncompliance with 10 CFR 50, Appendix B, Criterion II, as described in Appendix A of this report transmittal letter. (440/81-01-03; 441/81-01-03)

D. CEI Corrective Action

RIII inspectors formally notified CEI management of a significant number of findings concerning the Perry nuclear coatings contractor, Metalweld, on January 23, 1981. As a result of these discussions, CEI initiated prompt corrective action in the form of Stop Work Notification No. 81-01. Corrective Action Request No. 0504 is attached to the stop work order and specifically details those actions necessary to properly address the identified deficiencies.

Exit Interview

The inspectors met with licensee representatives (denoted under Persons Contacted) at the conclusion of the inspection on January 23, 1981. The inspectors summarized the purpose and findings of the inspection. The licensee acknowledged the findings reported herein.