

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-440/85043(DRS)

Docket No. 50-440

License No. CPPR-148

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

Facility Name: Perry Nuclear Power Plant, Unit 1

Inspection At: Perry Site, Perry, Ohio

Inspection Conducted: June 19-21, 1985

Inspector: *J. Jacobson*
J. Jacobson

7/10/85
Date

Approved By: *D. H. Danielson*
D. H. Danielson, Chief
Materials & Processes Section

7/10/85
Date

Inspection Summary

Inspection on June 19 - 21, 1985 (Report No. 50-440/85043(DRS))

Areas Inspected: Unannounced, special inspection to review welding procedures used by the electrical contractor for cable trays and supports. This inspection involved a total of 16 inspector-hours onsite by one NRC inspector.

Results: Within the areas inspected, one violation was identified (failure to control special processes - Paragraph 2.a and c).

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DETAILS

1. Persons Contacted

Cleveland Electric Illuminating Company (CEI)

*K. Cimorelli, Lead Quality Engineer
J. Wilcox, Welding Engineer
S. Anzalone, Welding Engineer
*S. Tulk, Supervisor, Electrical Quality Unit
*D. Gallagher, Quality Assurance Level II Inspector
*G. Parker, Quality Assurance Supervisor
*C. Shuster, Quality Assurance Manager
*K. Pech, General Supervising Engineer
*H. Walls, Senior NDE Administrator

Comstock Engineering, Inc.

J. Hubbuch, Quality Assurance Engineer
T. Vogt, Quality Assurance Engineer
W. Gardner, Quality Control Manager
C. Hart, Assistant Quality Control Manager

Gilbert/Commonwealth

C. Wright, Senior Welding Engineer
B. Brown, Design Engineer

*Denotes those attending the exit meeting.

2. Review of L. K. Comstock Welding Procedures

A comprehensive review of all welding procedures used for fabrication and installation of cable trays and supports was performed. This special review was conducted as a result of problems that were found with welding procedures utilized by this same contractor at another site. The procedures and revisions reviewed are as follows:

- a. Procedure 4.7.1, Revision C dated April 3, 1985, (For SMAW) permits the use of E6010, E7010, E6013, and E7018 electrodes. Three of these electrodes were in stock and available for field use. The design for electrical support attachment to building structure assumes weld material having 70 ksi minimum strength is used. As this procedure does not adequately control electrode selection, it is possible that E6010 or E6013 electrode having 60 ksi minimum strength could be used. Use of these electrodes could result in welded connections of inadequate strength. It should be noted that this deficiency existed in all revisions of this procedure. Failure to control the selection of electrodes is an example of a violation of 10 CFR 50, Appendix B, Criterion IX (440/85043-01(a)(DRS)).

Requirements per AWS D1.1-75 (the applicable welding code) require a 150°F preheat temperature for materials 3/4" through 1 1/2" thick

when using E6010 or E6013 electrodes. All revisions of this procedure fail to address this requirement. When using E7018 electrode, a 150°F preheat is required for materials over 1 1/2" in thickness. All revisions of this procedure prior to revision C fail to address this requirement. Failure to observe preheat requirements may result in cracking of welds. Failure to control the preheat requirements is an example of a violation of 10 CFR 50, Appendix B, Criterion IX, (440/85043-01(b)(DRS)).

The AWS D1.1-75 code allows the use of certain welding procedures without having to perform a qualification test provided all stated requirements are met. The "prequalified" fillet weld procedure requires that a specific size fillet be applied dependent on material thickness, and that it be accomplished in a single pass thus controlling heat input. Failure to follow these heat input requirements may result in weld cracking. All revisions of this procedure fail to incorporate this requirement. When a procedure fails to incorporate all requirements for "prequalified" status, a qualification test is required. The failure to control heat input requirements is an example of a violation of 10 CFR 50, Appendix B, Criterion IX, (440/85042-01(c)(DRS)).

The AWS D1.1-75 code requires that when a procedure is qualified, it be tested in all positions that will be encountered in the field. All revisions of Procedure 4.7.1 state that all positions are qualified, however, procedure qualification records do not support this. The qualification tests were not performed in all positions. The AWS code also requires that when materials not listed as "approved" are used, a qualification test be performed. Some galvanized unistrut items were supplied as ASTM A446, which is not listed as an "approved" material, and were subsequently welded with Procedure 4.7.1. This procedure (all revisions) neither permits welding of A446 material nor is qualified.

Welding procedure qualification tests must contain sufficient information to establish procedural limits. The qualification tests for stainless steel welding do not state the thickness of the test coupon. This thickness is used to establish the range of thickness to which the procedure is qualified. Furthermore, Procedure 4.7.1 (all revisions) does not state the required thickness limitation. Failure to control the qualification process as stated in the two examples above are considered a violation of 10 CFR 50, Appendix B, Criterion IX (440/85043-01(d)(DRS)).

Other revisions of Procedure 4.7.1 reviewed by the inspector were as follows:

| | | | | | |
|---------|---------|---------|---------|---------|---------|
| 3/16/84 | 3/1/83 | 2/14/83 | 11/2/82 | 9/22/82 | 8/26/82 |
| 5/24/82 | 11/4/80 | | | | |

- b. Procedure 4.7.9 dated April 27, 1984, (for GMAW) was reviewed and found to be acceptable.

- c. Procedure 4.7.7 dated October 9, 1981, for welding galvanized sheet and tube states that it is "prequalified" per the AWS D1.1 code. Galvanized materials are not "prequalified" and require qualification testing. This is another example of a violation concerning control of the qualification process (440/85043-01(d)(DRS)).

3. Review of Piping Weld Repair

Six documentation packages relating to weld repairs on RHR system piping were reviewed by the inspector. The following 5 packages were found to be complete and acceptable:

1E12-23, Weld 24
1E12-12, Weld 3
1E12-25, Weld 3
1E12-28, Weld 10
1E12-28, Weld 3

The documentation for 1E12-24 Weld 21 was found to be unacceptable. The radiograph of this repair for area 5-1 contained a questionable linear-like indication which had not been evaluated. The CEI Senior NDE Administrator agreed that the indication should have been evaluated. The NDE Administrator, a qualified ASNT Level III, evaluated the indication as slag and added it to the documentation package. The NRC inspector reviewed and agreed with the evaluation.

4. Examination of L. K. Comstock Welding

Approximately 300 welds located in the control complex at elevation 620' and the cable spreading room at elevation 638' were visually examined by the inspector. The general workmanship and quality of all welds inspected appeared acceptable to the inspector.

5. Exit Interview

The inspector met with representatives (denoted in Persons Contacted paragraph) at the conclusion of the inspection. The inspector summarized the scope and findings of the inspections noted in this report. The inspector also discussed the likely informational content of the inspection report with regard to documents or processes reviewed by the inspector during the inspection. The licensee did not identify any such documents/processes as proprietary.