

UNITED STATES GOVERNMENT

Memorandum

TO : Edson G. Case, Deputy Director
Division of Reactor Licensing

FROM : L. Kornblith, Jr., Assistant Director
for Reactors
Division of Compliance *L. Kornblith, Jr.*

SUBJECT: COMMONWEALTH EDISON CO. (DRESDEN 2)
DOCKET NO. 50-237

DATE: December 5, 1966

CONNECTICUT LIGHT AND POWER CO. (MILLSTONE POINT)
DOCKET NO. 50-245

CONSOLIDATED EDISON CO. (INDIAN POINT 2)
DOCKET NO. 50-247

NORTHERN STATES POWER CO. (MONTICELLO)
DOCKET NO. 50-263

The attached report by our field inspector of visits to Babcock and Wilcox Company, Combustion Engineering Company, and Chicago Bridge and Iron Company is forwarded for information. The report contains information on fabrication of reactor vessels for the four subject facilities.

A report by our consultant on reactor pressure vessels, Mr. Richard Lofy of Parameter, Inc., who accompanied our inspector on the visits noted above, has been forwarded to you in advance under separate transmittal and should be attached to this CO Inspection Report.

Based on our review of these reports, we have the following recommendations for your consideration:

1. It is recommended that a licensee be required to submit a report of an analysis of the as-built reactor vessel to provide assurance that the vessel conforms to Code requirements and to evaluate the degree to which actual deviations, allowable within the Code, have degraded the vessel from the optimum (Lofy Appendix, Item 6).

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2. It is recommended that a licensee be required to specify that the vessel fabricator perform a final ultrasonic test with 100% coverage of the completed vessel (Lofy Appendix, Item 2).

Three observations by CO during recent inspections provide additional basis to support our view that a final ultrasonic test of a completed pressure vessel is justified.

- a. During the October 27 B&W visit, our inspector noted that one shell ring had been cut apart and one-third of it rejected for flaws detected by "after forming" ultrasonic tests. Presumably, the plate was initially acceptable on the basis of the plate supplier and B&W's routine ultrasonic tests in the flat condition. The significance of this observation was not evident until Mr. Lofy suggested that damage may be occurring during fabrication.
- b. G-E has recently changed their specifications to require ultrasonic inspection after forming rather than in the flat condition.
- c. At Combustion Engineering, a weld flux problem was experienced during the fabrication of the Tarapur, Jersey Central and Niagara Mohawk vessels. (See Co Inspection Report dated February 14, 1966.) To verify that the problem had been corrected, additional ultrasonic tests were performed after the vessels were completed. In this case, both the fabricator and the buyer relied upon ultrasonic inspection for assurance of an acceptable product.

In our opinion, final ultrasonic testing is an area beyond Code which would give assurance that unknown or unsuspected flaws regardless of cause were not slipping by undetected. These tests would also provide a reference base point for possible future in-service tests.

3. With respect to the Chicago Bridge and Iron field fabrication work, it is recommended that the following be required of the licensee:

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- a. A demonstration that source radiography procedures are adequate. Evaluation of the demonstration should be made by Parameter, Inc. This recommendation is based on the fact that shop fabricators do employ more sensitive machines and frequently find flaws that would be undetected by minimum Code techniques.
- b. The establishment of an adequate process documentation system. (See Section II.C.3.b., page 12 of the attached report.)

We will be happy to discuss these recommendations with you further at your convenience.

Attachment:

CO Rpt Nos. 237/66-5, 245/66-4
247/66-3 & 263/66-1
by G. W. Reinmuth, dtd 11/22/66

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