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Docket Nos. 50-237
and 50-249

DEC 21 1967

Commonwealth Edison Company
72 West Adams Street
Chicago, Illinois 60690

Attention: Mr. W. B. Behnke
Assistant to the President

Gentlemen:

The fabrication of the Dresden Units 2 & 3 reactor pressure vessels was unique in that electro-slag welding was used. Since this process was not used on other reactor pressure vessels, we request that the information listed in the enclosure be provided for our review.

In addition, we believe that a discussion of the fabrication and testing procedures related to code certification of the reactor pressure vessel should be provided for our review. This discussion should include consideration of the acceptance of materials having tensile properties above ASME code limits.

Our evaluation of your application is continuing and our needs for additional information in other areas will be transmitted to you at a later date. If necessary, we are available to explain and clarify any of the information requests listed in the enclosure.

Sincerely yours,

Peter A. Morris, Director
Division of Reactor Licensing

Enclosures:
As stated above

OFFICE ▶	RPB-2:DRL	DRL	DRL	DRL		
SURNAME ▶	RLTedesco/rgl	RSBoyd	SLevine	PAMorris		
DATE ▶	12/22/67	12/22/67	12/22/67	12/23/67		

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ATTACHMENT A

INFORMATION NEEDED ON REACTOR PRESSURE VESSEL WELDING

DRESDEN UNITS 2 AND 3

DOCKET NUMBERS 50-237/249

1. Provide a history of the use of electro-slag welding for all types of pressure vessels. Include a summary of typical vessel dimensions, materials, and basic design parameters as well as the extent and results of service experience accumulated for such vessels.

2. Provide a description of the electro-slag welding process used for the Dresden Units 2 and 3 vessels.

3. Provide, in detail, the information which was considered in justifying the use of electro-slag welding in fabrication of reactor pressure vessels. In particular, the information should include the following:

   For the base metal, heat affected zone, and weld metal, provide:

   (a) Data on fracture behavior given in terms of Charpy V-notch toughness and NDTT (nil ductility transition temperature), and supplemented by data from fracture toughness tests where feasible.

   (b) Data which defines the effects of ageing and corrosion under simulated operating conditions.

   (c) Data which demonstrates the effects of neutron irradiation on the notch toughness of the materials.

   (d) Data which demonstrates the homogeneity of the weldment with emphasis on variations in physical and chemical properties as determined by sampling in the principal and transverse directions of the weld.

4. Provide detailed information on sensitive variables, which must be considered during the welding process. The information should include the following:

   (a) Number of electrodes used and their chemical composition

   (b) Slag composition

   (c) Sensitivity to energy input (volts-amps)

   (d) Sensitivity to post-weld heat treatment.

   (e) Sensitivity to weld metal solidification pattern.

5. Provide detailed information on process control methods to cover the following:

   (a) Items enumerated in (4) above.

   (b) The desired material properties in the weldment after quench and temper heat treatment.

6. Provide data on the material properites of the production welds performed on the Dresden Units 2 and 3 reactor vessels.

7. Describe the proposed in-service surveillance program contemplated for weldments produced by the new electro-slag process. All proposed tests and inspections should be specified and the purpose, methods, and frequency of each should be included.