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UNITED STATES
ATOMIC ENERGY COMMISSION
WASHINGTON, D.C. 20545

May 10, 1972

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U. S. Atomic Energy Commission
Washington, D. C. 20545

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In the Matter of Consolidated Edison Company of New York, Inc.
Indian Point Nuclear Generating Unit No. 2
Docket No. 50-247

Gentlemen:

In response to the Board's request at the last hearing session in subject proceeding held on April 5, 1972, there is forwarded herewith a document entitled "Summary of Investigation into Allegations of Safety - Prepared by Directorate of Regulatory Operations - Region I, U. S. Atomic Energy Commission---" relating to allegations submitted by the President of PECor Division of the Pennsylvania Engineering Corporation.

At the next evidentiary session of the hearing to be held on May 17, 1972, the Regulatory Staff will endeavor to have staff witnesses present to respond to Board questions covering the abovementioned report, and other radiological matters still pending.

I have been advised by Counsel for PECor that Mr. Brill will be present at the hearing on May 17, 1972.

Sincerely,

Myron Karman

Myron Karman
Counsel for AEC Regulatory Staff

Enclosure:
As stated

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Summary of Investigation

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Allegations of Safety

Prepared by

Directorate of Regulatory Operations

Region I

U. S. Atomic Energy Commission

In the Matter of

Consolidated Edison Company

Indian Point Nuclear Generating Plant Unit 2

Docket No. 50-247

May 8, 1972

Subject: Structural Components Fabricated by the Pennsylvania Engineering Corporation, PECor Division, New Castle, Pennsylvania

A. REASON FOR INVESTIGATION

On March 22, 1972, the Directorate of Regulatory Operations, Region I, received a copy of a letter dated March 14, 1972 addressed to Mr. L. Manning Muntzing, Director of Regulation, from Mr. Harry K. Brill, President, Pennsylvania Engineering Corporation, PECor Division, New Castle, Pennsylvania, (PECor). This letter requested "as-built" engineering drawings of several Class I components of Indian Point Unit No. 2 (IP2) and stated that because drawings from Westinghouse Electric Corporation (W) contained several deficiencies, there is a serious problem of plant safety because of deviations, distortions, and deficiencies in the equipment supplied.

B. SUMMARY OF FACTS

PECor was subcontractor to the Pittsburgh Bridge and Iron Company (PBI) which in turn was a subcontractor to United Engineers and Constructors, (UEC), Architect-Engineers to (W). The Consolidated Edison Company (Con Ed), the licensee, had contracted with (W) to construct IP-2 on a turnkey basis.

The investigation, implemented by Region I on March 29, 1972, disclosed that PECor had fabricated the steam generator support shoes, the reactor pressure vessel support ring, components for the primary coolant pump supports, and the pressurizer support ring for IP-2.

The investigation disclosed that the components supplied by PECor did have deviations. All identified deviations were subsequently reworked or re-evaluated by Con Ed or its contractors to assure their conformance to acceptable standards and to assure the adequacy of the structures supplied by PECor.

At the deposition held on April 20, 1972, Mr. Brill stated that the only known safety issues were the adequacy of the reactor vessel support ring and the steam generator support shoes. In order to supplement our investigation in the areas of the identified concerns, Region I retained Parameters, Inc. as a consultant to conduct an engineering evaluation of the installed reactor vessel support ring and the steam generator support shoes. The results of Parameters evaluation are that the as-installed components are adequate to perform their design functions.

C. FINDINGS WITH RESPECT TO PECOR'S SAFETY RELATED ALLEGATIONS

I

A. ALLEGATION

"Steam Generators Were Delivered with Serious Deviations with Respect to Both Size and Form" --- "Deviations of Both the Steam Generator Supports and the Out of Tolerance Steam Generators Delivered by other Suppliers"

B. FACTS FOUND

The cast steam generator support lugs included normal cast fillets and webs to provide stability and to eliminate stress concentrations. In random locations, these created an interference fit into the steam generator support shoes.

The dimensional deficiencies and the additional machining required for design fit of the steam generator mounting lugs into the support shoes were identified. The T-1 steel details on the support shoes were not machined by PECor to the PBI drawing dimensions. These incorrectly machined support shoes were repaired to conform to the PBI drawing dimensions. In addition, to accomodate casting irregularities on the steam generator mounting lugs, additional material was removed from individual support shoes to provide tailored fits to the male mounting lugs.

An approved engineering repair procedure was provided to control the repairs. An engineering stress analysis was performed by UEC, on a worst case basis, to assure that the removal of additional material had not reduced the capability of the as-installed steam generator support shoes to accept the design forces of uplift and shear. An evaluation and stress analysis of the as-installed steam generator support shoes by Region I, and its consultant, confirms that the items are adequate. The investigation verified that the as-installed components are adequate to perform their design function.

II

A. ALLEGATION

"Dimensioning and Tolerancing --- were not in accordance with ASA Standards"

B. FACTS FOUND

The investigative team's review indicated that fabrication was adequate in regard to dimensioning and tolerancing. The only conflict noted by our investigative team was the use of American Welding Society Standards instead of ASA Standards. The welding information provided was adequate to perform the required work. This item has no safety significance.

III

A. ALLEGATION

"Design of the Reactor Support Ring is Inadequate, Incomplete and Questionable"

B. FACTS FOUND

During the investigation conducted by Region I at the PECor facility, Mr. Brill stated that fabrication changes and shop repair of the components required by the UEC and PBI inspectors "may or may not be of safety significance . . . PECor is not qualified to judge". Mr. Brill further emphasized that the Reactor Pressure Vessel support ring met all material and quality requirements of the UEC specification and PBI drawings when it left his facility.

In the deposition given under oath before the Atomic Safety and Licensing Board, Mr. Brill stated "Neither he nor the PECor staff are competent to evaluate the design adequacy of the modified, installed PRV support ring . . . Their concerns would be eliminated if an evaluation of this reworked structure were made by a competent group such as the USAEC."

The Investigative Team detected no evidence of inadequate, incomplete or questionable design. This was confirmed by an independent evaluation by Parameter, Inc. The investigation verified that the as-installed component is adequate to perform its design functions.

IV

A. ALLEGATION

"There Was a Problem of Distortion During Heat Treatment (HT) of the (RPV Support Ring) Welded Assembly" ---"Serious Deviations with Respect to Fabrication of the RPV Support Ring"

B. FACTS FOUND

Mr. Brill stated that after stress-relieving, the RPV support ring was warped as much as one and one-half inches (1-1/2") out-of-plane. He further stated this dimensional deviation was reworked to the satisfaction of the UEC and PBI vendor inspectors who accepted the reworked ring and authorized its shipment to the IP-2 site. In his deposition, under oath, Mr. Brill stated:

a. The RPB support ring met all UEC and PBI specifications and drawing requirements when shipped from his facility.

b. His concerns were restricted to the adequacy of the RPV support ring to safely perform its design function after rework at the site.

Our investigation revealed that mis-located anchor bolt holes were repaired by elongating the anchor bolt holes approximately one inch. This elongation would not decrease the capability of the ring to resist the design shear and uplift loads. The dimensional deficiencies in the RPV support ring girder were accomodated during installation by reducing the thickness of the concrete grout under the ring to meet the elevation dimensions and planar tolerances of the UEC drawings. Structural analysis of the as-installed RPV support ring by Region I, and its consultant, confirmed the adequacy of the assembly to safely accomplish its design function. The investigation verified that the as-installed component is adequate to perform its design function.

D. CONCLUSION

The Region I investigation has verified that the deficiencies and deviations in PECor supplied components, have been identified, corrected, and evaluated by Con Ed and its contractors, and that these components will safely perform their design functions. Furthermore, an independent engineering evaluation of the structural adequacy of the as-installed steam generator support shoes and the reactor vessel support ring was conducted by Region I and its consultant. The result of this evaluation is that these structures are adequate to perform their design functions.

It is our conclusion that the safety related matters identified by Mr. Brill do not adversely affect the health and safety of the public and that the as-installed components fabricated by PECor for the Indian Point 2 nuclear facility are adequate to perform their design functions.