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November 8, 1984

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SENIOR VICE PRESIDENT
NUCLEAR

BEC0 84-189

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Operating Reactors Branch #2
Division of Licensing
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D. C. 20555

License No. DPR-35
Docket No. 50-293

Pilgrim Jet Pump Instrumentation Nozzle Repair Program

Attachment (1) Weld Overlay Design for the Indications in the Pilgrim Jet Pump Instrumentation Nozzle

Dear Sir:

This letter submits information related to the status of the Pilgrim Station jet pump instrument nozzles and specifically the N9A nozzle. The examination results, the repair method utilized, and the analysis of the repair method are submitted in response to your request for information on this subject.

The reactor vessel jet pump instrumentation nozzles are welded to the jet pump instrumentation seals. These welds were examined by liquid penetrant during RFD 6 and indications were found on each weldment. A review of the construction x-rays confirmed that these indications were surface weld defects. These defects were subsequently removed by grinding and were accepted upon re-examination.

As a result of visual observation of the jet pump instrumentation welds, the weld on the N9A nozzle required additional investigation to determine the interface between the vessel material (P-3), weld material Alloy 182 and the penetration seal, which was solution annealed after the weld surface had been buttered with Alloy 182. A dimensional comparison was made between the Combustion Engineering shop inspection reports and the field data. The results confirm that the N9A nozzle projects approximately 5/8" to 3/4" further from the vessel than the N9B nozzle. Macro-etching of the N9A nozzle to instrumentation seal weld region revealed that a 3/8" band of Type 304 stainless steel material exists in the weld assembly. The band is apparently the remainder of the original safe-end which should have been removed during the furnace sensitized safe-end replacement by Combustion Engineering in 1969. Further confirmation was provided by chemical analysis of filings removed from the outside diameter surface.

An ultrasonic examination procedure was qualified for the weld configuration and the examination results show that indications exist in the heat affected zone of the furnace sensitized stainless steel adjacent to the nozzle weld.

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Mr. Domenic B. Vassallo, Chief

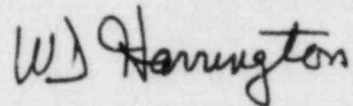
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Two circumferential indications were identified with a length of approximately one inch. No depth was determined because of ALARA considerations. All ultrasonic examination personnel are qualified to current EPRI/NDE standards.

BECO has repaired this weld with a weld overlay made of Alloy 82 material. The weld overlay was designed to provide full structural reinforcement even with a postulated 360° through wall crack while maintaining ASME Code safety margins.

Further details of the weld overlay repair and the analytical basis for the design are described in Attachment 1.

Very truly yours,

A handwritten signature in black ink, appearing to read "WJ Harrington". The signature is written in a cursive style with a large, prominent "H".

TFF/ns

Attachment