



Commonwealth Edison

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March 15, 1985

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Byron Generating Station Unit 2
Preservice Inspection
NRC Docket No. 50-455

Reference (a): October 27, 1983 letter from T. R. Tramm
to H. R. Denton.

Dear Mr. Denton:

This is to inform you of the results of preliminary preservice inspection examinations of the Byron Unit 2 steam generators and pressurizer. A number of flaw indications have been reported which would be rejectable according to ASME Code Section XI criteria. We expect to be requesting NRC concurrence in our decision to not pursue preservice repair of certain of these indications.

As discussed in reference (a) and in Supplement 4 to the Byron SER, several flaw indications were reported during the preservice inspection of the Byron Unit 1 steam generators and pressurizer. Based upon the Byron 1 experience, preliminary preservice inspection examinations were conducted by EBASCO on the corresponding Byron 2 components. These inspections detected 34 indications which are recordable at 50% DAC per Section XI requirements. There are 11 other indications which were reported with amplitude less than 50% DAC. Reporting of these 11 indications is not required by Section XI but was requested by Commonwealth Edison.

Westinghouse was requested to assist in the analysis and evaluation of the ultrasonic data. Additional examinations were performed according to Westinghouse recommendations to accurately assess the size and location of the indications. These examinations included visual, ultrasonic, magnetic particle and radiographic tests from accessible inner diameter surfaces of the components. Also, ultrasonic examinations were repeated from the outer diameter surfaces under Westinghouse direction. Westinghouse also performed metallurgical analysis on metal plugs removed from the Unit 1 steam generator welds containing UT indications. This destructive testing showed that the ultrasonically predicted dimensions of the reflectors were much greater than their actual dimensions. The average ultrasonically-predicted length was 2.5 times greater than the actual length. The ultrasonically-predicted through-wall dimension was 6.5 times greater than the actual through-wall dimension.

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Westinghouse used supplemental NDE test data and the results from the metallurgical analysis to evaluate the condition of the Unit 2 components. On this basis a majority of the Unit 2 indications do not exceed the Section XI acceptance criteria. Specifically, when the indications are conservatively sized to 70% of the ultrasonically-predicted lengths and 25% of the predicted through-wall dimension, only the five indications listed on Attachment A to this letter are unacceptable.

We presently plan to repair three of the five weld areas. Two of the five unacceptable indications are located in welds near the tubesheet of the steam generators. Because of the location of these indications it is believed that the field repair activities could be more detrimental to the integrity of these vessels than retaining the flaws. We therefore intend to request NRC concurrence in our decision to not attempt the repair of these flaws, based on a risk assessment of the repairs and a fracture mechanics study of the indications.

The information provided by the preliminary preservice inspection is being used by Commonwealth Edison to establish an efficient program plan for conducting the official preservice inspection and in evaluating the resultant test data. In order to determine if the nature of the reflectors in Unit 2 is the same as those in Unit 1 and verify that that key sizing dimensions are being exaggerated, detailed metallurgical evaluations will be performed on samples removed from the three reflectors to be repaired.

This matter has already been discussed by telephone with the NRC Staff. At their request we are preparing to submit more detailed information on the Byron 2 preliminary inspections. Within two weeks we expect to provide the following:

- (a) a tabulation of the unacceptable ultrasonic inspection results on Byron 2 and a description of the inspection techniques
- (b) a report of the metallurgical investigation of the ultrasonic indications in two samples taken during the repair of similar indications on Byron 1
- (c) the scope of metallurgical investigations which will be performed on samples to be taken from the three Byron 2 welds which we presently plan to repair
- (d) an outline of the planned repair procedure including measures to be taken to reduce residual stresses
- (e) relevant details of joint design and fabrication procedures.

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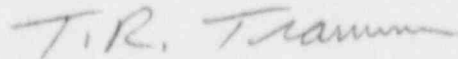
In addition, fabrication radiographs in areas which produced Unit 1 and Unit 2 ultrasonic indications will be reviewed to determine if acceptable radiographic indications were present in locations where ultrasonic indications were detected. Also, a study will be made to determine if the materials, weld process and/or fabrication techniques used in the construction of the components could logically lead to the formation of innocuous slag-induced discontinuities.

The evaluation of the two welds flaw indications which will not be repaired is planned to be provided by May 1, 1985. We will keep the NRC staff advised of our schedule for beginning the repair work.

It is recognized that the information provided here must be considered preliminary. No final conclusion regarding these indications can be drawn until the metallurgical evaluations are complete and the preservice inspection is performed after hot functional testing. We expect that a meeting will be needed in the near future to discuss this matter further. In the meantime, please direct further questions to this office.

One signed original and fifteen copies of this letter and the Attachment are provided for NRC review.

Very truly yours,



T. R. Tramm
Nuclear Licensing Administrator

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Attachment

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ATTACHMENT A

WELD INDICATIONS REQUIRING REPAIR IN BYRON UNIT 2
STEAM GENERATORS BASED ON PRELIMINARY INSPECTION DATA.

<u>Steam Generator</u>	<u>Weld Seam*</u>	<u>Location</u>
2095	SGC02	110" CCW**
2096	SGC05	212-3/4" CW
2097	SGC02	107-1/4" CW**
2097	SGC06	139-1/4" CW
2098	SGC06	40-5/8" CCW

* Weld Seams are numbered sequentially from SGC01 through SGC08 from bottom to top of vessel.

** Waiver will be sought after risk assessment and fracture mechanics study is performed.