



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION III
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① copy for Norrholm, VJB
② orig. to AC -
morning report item?
P21 93342

No: RIII-93-08

TECHNICAL ISSUE SUMMARY

Date: 08/27/93

Integrated Circuit (IC) Socket Performance Deficiencies

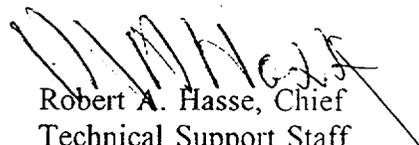
PROBLEM: During testing of process instrumentation prior to an analog-to-digital replacement at the D. C. Cook Nuclear Plant, a generic product deficiency was identified. This deficiency involved the use of a particular grade of IC socket which would not support the manufacturer's (ABB-KENT-TAYLOR) product performance standards. The deficiency resulted in intermittent contact between the IC and its socket, thus interrupting signal processing and causing it to stop.

EVALUATION: During a routine NRC inspection of the analog-to-digital process instrumentation replacement program at D.C. Cook Nuclear Plant, August 9-11, 1993, the inspector learned that a recurrent problem had been identified. This problem was observed during testing at the site prior to planned 1994 installation. It involved intermittent failures of various process control units. The control unit's internal monitoring system would detect a problem and shut the instrument down (i.e., cause its outputs to reduce to zero). During a meeting between the licensee and the manufacturer the problem was isolated to the sockets for the ICs. These sockets (Manufactured by AUGAT INC.) are made in various quality levels and a lower quality socket was used.

The process control units were built as commercial grade equipment in 1989 by Asea Brown Boveri-Combustion Engineering (ABB-CE) Taylor and not delivered to the licensee until 1993. The original purchase order was for both safety related and non-safety related units. The ABB-CE Taylor equipment used for safety related applications was to be qualified by ABB-CE. Prior to release and shipment of the equipment to D.C. Cook the safety related portion of the contract was cancelled.

LICENSEE/NRC ACTION: The licensee informed ABB-CE of this potential generic product deficiency in an August 20, 1993 letter. The Equipment manufacturer (ABB-KENT-TAYLOR) has agreed to replace all of the sockets with better ones at ABB-CE's expense.

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