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RECIP.NAME RECIPIENT AFFILIATION
DENTON,H.R. Office of Nuclear Reactor Regulation, Director

SUBJECT: Provides info requested by NRC, including justification of quality of Rosemount RdF resistance temp detectors being replaced & history of actions re RdF Corp resistance temp detectors.

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August 8, 1985
AEP:NRC:0942C

Donald C. Cook Nuclear Plant Unit Nos. 1 and 2
Docket Nos. 50-315 and 50-316
License Nos. DPR-58 and DPR-74
STATUS REPORT AND PLANS CONCERNING THE IMPACT
OF RdF RTDs ON D. C. COOK UNIT NOS. 1 AND 2

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

References:
1) Letter from E. P. Rahe, Jr., of the Westinghouse Electric Corporation to Mr. Cecil O. Thomas of the NRC dated May 6, 1985, identifier NS-NRC-3034.
2) Letter from M. P. Alexich of American Electric Power Service Corporation to Mr. H. R. Denton of the NRC dated July 30, 1985, identifier AEP:NRC:0942A.

Dear Mr. Denton:

This letter is to provide information requested by your staff in a telephone conversation of July 30, 1985. Specifically, they requested 1) a justification of the quality of the RdF resistance temperature detectors (RTDs) relative to the Rosemount RTDs that they are replacing, and 2) a history of AEPSC actions associated with the RTDs manufactured by RdF Corporation.

To address the first part of the above question, we would point out that the instruments currently being installed are high-quality instruments needed to meet the requirements of 10 CFR 50.49. The RdF RTD accuracy included an allowance for calibration and drift consistent with the Westinghouse qualification program. The calibration issue had no connection with the quality, sensitivity, or inherent accuracy of the instruments. Rather, it was simply found that the factory calibration of the instruments did not correspond to the Westinghouse specifications and the values used in the safety analysis. RdF and Westinghouse have, through recalibration of the RTDs and recommendations on the cross-calibration technique, reallocated the total RTD allowance to be consistent with original safety analysis assumptions for RdF RTDs.

The remainder of this letter addresses the recent history of the RdF RTD-related actions which led to our request for the Technical Specification change (cited in Reference 2) resulting from the impact of RTD allowances.

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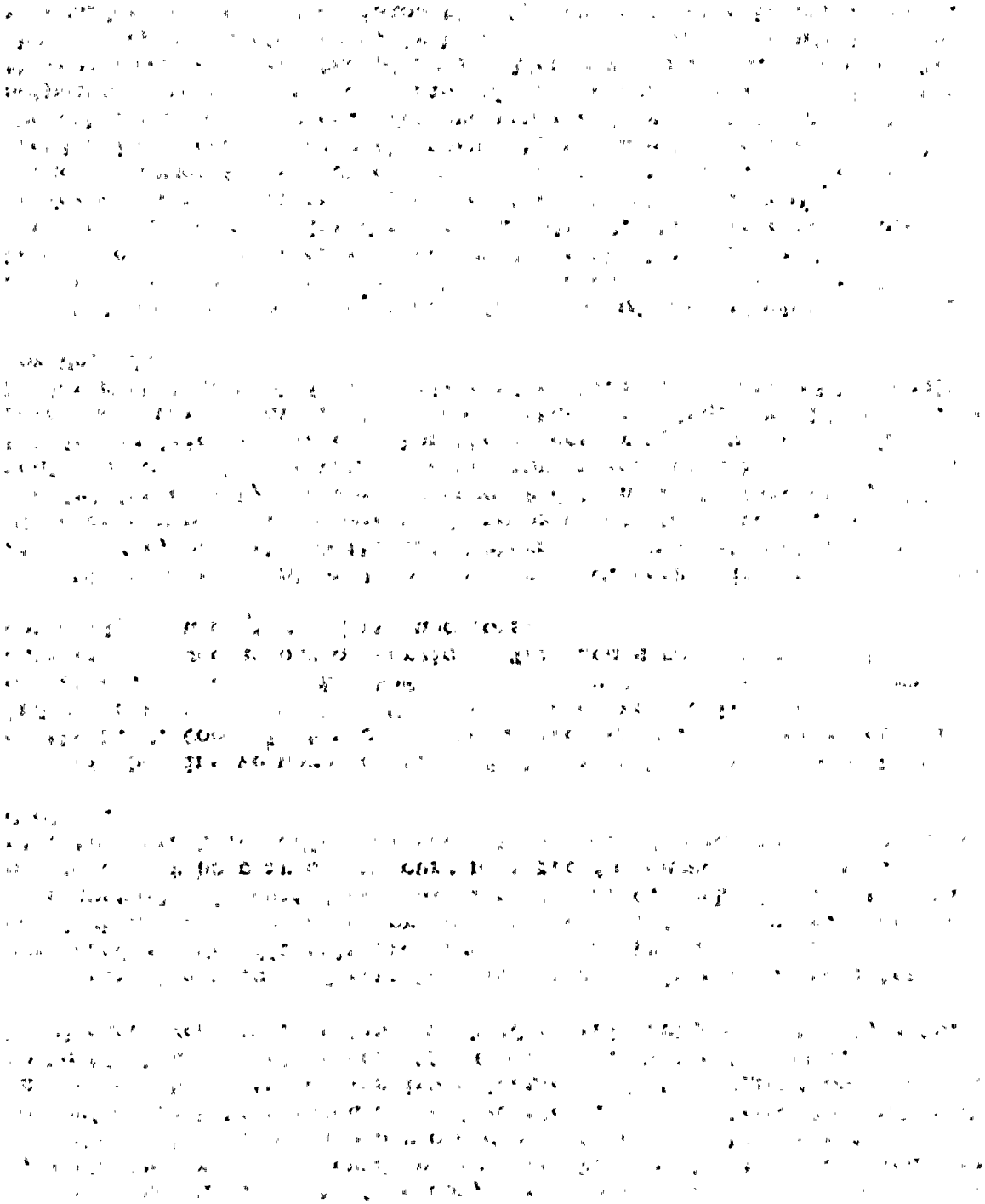
Westinghouse, our NSSS vendor, notified the D. C. Cook Plant on May 2, 1985, that they had found an error in their calibration technique for RdF RTDs. The calibration performed by RdF on its RTDs was not compatible with Westinghouse specifications. Westinghouse has informed the NRC of the status of its investigations of RTD calibration anomalies in Westinghouse-supplied RdF RTDs (Letter No. NS-NRC-85-3034). A Westinghouse/customer meeting was held on this subject on May 9, 1985.

AEPSC had purchased four RdF RTDs from Westinghouse, and later purchased 32 RTDs directly from RdF. The RTDs purchased from Westinghouse were installed prior to the May 9, 1985 meeting. Two each were installed in Unit 1 and Unit 2 of the D. C. Cook Plant. It should be noted that as part of our current refueling outage activities, we plan to install 14 additional RdF RTDs in Unit 1 prior to the startup of Cycle 9.

At the time we were notified of the error by Westinghouse, Unit 1 of the D. C. Cook Plant was in a refueling outage. Present information indicates that the two RdF RTDs installed on this unit were not used for operation. On Unit 2, the RdF RTDs are installed as spares and are currently tagged as out of service. This means that they cannot currently be used for safety functions.

The DNB transient analyses for Donald C. Cook Unit 1 were performed at 3411 MWt, even though the rated thermal power is 3250 MWt. This difference represents a margin of approximately 5% in power. Using a sensitivity of 1°F/1% power, as suggested to us by Westinghouse, this would indicate that an unused temperature margin of 5°F was available. 5°F is significantly larger than the largest temperature error that we were made aware of at the May 9 Westinghouse meeting. On this basis, we believed that no Technical Specification (T/S) changes would be required for Unit 1.

Telephone conferences on June 18 and 19 with Westinghouse Electric Corporation indicated that the above approach may not be acceptable because of the impact on the LOCA analysis which was recently reperformed and transmitted to you on July 23. When used to ensure LOCA conformance, the principal effect of the RdF RTD error would be to induce a larger-than-assumed error in the primary flow. A second problem is associated with the method by which RTD errors are used in the other safety analyses. The overpower and overtemperature ΔT setpoints are set based on design thermal power rather than the rated thermal power at which the plant is allowed to operated. As a result of these telephone conferences, it became apparent that we would have to reconsider our initial decision that T/S changes would be unnecessary.



On June 21, 1985, a telephone conference was held with your staff to apprise you of the issues and to discuss the available options for Unit 1. We were not prepared to submit T/S changes at that time, because a considerable amount of effort remained in order to do the necessary evaluations to support such a submittal. In addition, there was still some uncertainty as to whether a T/S change would be requested due to the possibility of using the margin described above.

On June 19, Westinghouse was authorized to initiate a safety review of the impact of the RdF calibration issue on Unit 1. The next few weeks were occupied with the process of defining the work that needed to be accomplished, data that needed to be transmitted to Westinghouse, and the collection and transmission of the required data. This included transmitting existing RdF calculation curves and gathering data from the new Foxboro pressurizer pressure transmitters. In addition, the transmitter data had to be reviewed, and pertinent information was extracted prior to transmission. A procedure to perform a cross-calibration of the RdF RTDs also had to be drafted, and necessary review initiated. Necessary equipment required for the cross-calibration test was defined in order to procure unavailable items.

Conversations were initiated with your staff in late July, once the necessary work had been completed to determine the schedule for performing the analysis to support a T/S change. On July 29, we were informed that such a T/S must be submitted on an expedited basis. This resulted in our submittal to you of July 30, 1985 (Reference 2).

This document has been prepared following Corporate procedures which incorporate a reasonable set of controls to insure its accuracy and completeness prior to signature by the undersigned.

Very truly yours,

R. F. Hering
Vice President

RFH/c
8/8/85

cc: John E. Dolan
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