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Docket No. 50-369
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Docket No. 50-369

Mr. H. B. Tucker, Vice President
Nuclear Production Department
Duke Power Company
422 South Church Street
Charlotte, North Carolina 28242

Dear Mr. Tucker:

Subject: Proposed Technical Specification Change - Reduced Measurement Uncertainty for RCS Flow Rate (McGuire Nuclear Station, Unit 1)

Your letter dated November 23, 1982, proposed an amendment to the McGuire, Unit 1 Technical Specification. The proposed amendment reduces the measurement uncertainty for total RCS flow resulting in a decrease in the minimum RCS flow for acceptable operation. Our review of this proposal is in progress, however, we require additional information which is described in the enclosure. We request that this information be provided no later than April 1, 1983. It is noted that this request was previously provided to your staff.

The reporting and/or recordkeeping requirements contained in this letter affect fewer than ten respondents; therefore, OMB clearance is not required under P.L. 96-511.

Sincerely,

Elinor G. Adensam, Chief
Licensing Branch No. 4
Division of Licensing

Enclosure:
As stated

cc: See next page

OFFICE	DL:LB#4	LA:DL:LB #4	DL:L				
SURNAME	RBirkel:eb	MDuncan	EAdensam				
DATE	3/16/83	3/16/83	3/17/83				

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REQUEST FOR ADDITIONAL INFORMATION
ANALYSIS OF REACTOR COOLANT
FLOW MEASUREMENT UNCERTAINTY

Enclosure 2 to Duke Power Company letter dated November 23, 1982 provides an analysis of reactor coolant flow measurement uncertainty to support a requested change in plant Technical Specification. The following additional information is requested for completion of this review.

1. Table 1 provides the equation for calculating flow. Table 2 provides the uncertainties associated with calculation of loop flow. Since Table 2 does not include any uncertainty associated with primary system net heat losses, please confirm that this term is neglected and results in a conservative determination of loop flow.

2. Does the assessment of uncertainty in the measurement of feedwater flow agree with any published industry standard or publication or was it developed based on physical equations for flow? It is expected that the uncertainty in feedwater flow measurement has been the subject of previous investigations. The staff would like to know if such data was used and if not, what expertise was used for this evaluation.

3. The component error in differential pressure measurement made to determine feedwater flow is a very low number. Please provide the basis for the value used and how it is measured.

4. Please further clarify how the feedwater temperature is measured and the basis for its component error.

5. The dominant consideration in the total steam enthalpy error is moisture carry over, which is an estimated value. Also, the net pump heat addition uncertainty is an estimated value. Since these factors are onesided, i.e., not negative values, what is the basis for using the RSS method for their consideration in flow measurement uncertainty?

6. Please provide further clarification of the measurement errors associated with hot and cold leg temperature measurements. How is DVM used to measure resistance and how did you get the measurement span in oF and RTD calibration in %? Be explicit how this measurement is made.

7. Please provide a copy of the interface requirements established by Westinghouse that would be used by Duke Power Co. to assure that measurements would be made in a manner as assumed in the analysis and with the required accuracy.

Mr. H. B. Tucker, Vice President
Nuclear Production Department
Duke Power Company
422 South Church Street
Charlotte, North Carolina 28242

cc: Mr. A. Carr
Duke Power Company
P.O. Box 33189
422 South Church Street
Charlotte, North Carolina 28242

Mr. F. J. Twogood
Power Systems Division
Westinghouse Electric Corp.
P.O. Box 355
Pittsburgh, Pennsylvania 15230

Mr. G. A. Copp
Duke Power Company
Nuclear Production Department
P.O. Box 33189
Charlotte, North Carolina 28242

J. Michael McGarry, III, Esq.
Debevoise & Liberman
1200 Seventeenth Street, N.W.
Washington, D. C. 20036

Mr. Wm. Orders
Senior Resident Inspector
c/o U.S. Nuclear Regulatory Commission
Route 4, Box 529
Hunterville, North Carolina 28078

James P. O'Reilly, Regional Administrator
U.S. Nuclear Regulatory Commission,
Region I
101 Marietta Street, Suite 3100
Atlanta, Georgia 30303

R. S. Howard
Operating Plants Projects
Regional Manager
Westinghouse Electric Corporation - R&D 701
P.O. Box 2728
Pittsburgh, Pennsylvania 15230