

October 11, 2001

Mr. James F. Mallay  
Director, Regulatory Affairs  
Framatome ANP, Richland, Inc.  
2101 Horn Rapids Road  
Richland, WA 99352

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR TOPICAL  
REPORT BAW-10199P, ADDENDUM 2 , "APPLICATION OF BWU-Z CHF  
CORRELATION TO THE MARK-BW17 FUEL DESIGN WITH MID-SPAN  
MIXING GRIDS" (TAC NO. MB1677 )

Dear Mr. Mallay:

By letter dated November 22, 2000, Framatome Cogema Fuels (FCF) submitted Topical Report BAW-10199P, Addendum 2, "Application of the BWU-Z CHF Correlation to the Mark-BW17 Fuel Design with Mid-Span Mixing Grids," for NRC review. The NRC has concluded that additional information is needed to complete the review. Enclosed is a request for additional information regarding your November 22, 2000, submittal. Please respond within 30 days of receipt of this letter. This request has been discussed with you and you agreed to the schedule. If you have any questions regarding this request, please contact me at (301) 415-1424.

Sincerely,

*/RA/*

Jack Cushing, Project Manager, Section 2  
Project Directorate IV  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Project No. 693

Enclosure: Request for Additional Information

cc w/encl: See next page

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Framatome ANP

Project No. 693

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## REQUEST FOR ADDITIONAL INFORMATION

### BAW-10199P, ADDENDUM 2, "APPLICATION OF THE BWU-Z CHF CORRELATION TO

### MARK-BW17 FUEL DESIGN WITH MID-SPAN MIXING GRIDS"

### FRAMATOME COGEMA FUELS

### PROJECT NO. 693

In order to complete the review of Topical Report BAW-10199P, Addendum 2, "Application of the BWU-Z CHF Correlation to the Mark-BW17 Fuel Design with Mid-Span Mixing Grids," additional information is needed to clarify certain points in the report.

1. The new test set, FCF43, described in the report expands the data set supporting the BWU-Z CHF correlation with the  $F_{MSM}$  multiplier by adding 72 additional data points to the original data base. The original data base consisted of 76 data points obtained in test set BW18. The geometry of test set FCF43 is identical to that of test set BW18, except that BW18 models unit cell geometry, while FCF43 models guide tube geometry. The report asserts that the CHF performance of the FCF43 test section (with guide tube geometry) is "equivalent" to that of the BW18 test section (with unit cell geometry). FCF has stated that this equivalence is demonstrated by statistical analysis of the 52 "common points" in the two data sets. The "common points" are defined as data points in the two test sections that have "the same inlet temperature, mass velocity, and pressure." Examination of the data from test sets FCF43 and BW18, as reported in Table F-3, yields only 15 or 16 data points that appear to meet the above definition of "common points". Identify the 52 points from each test section that were used in the statistical analysis.
2. The discussion of the statistical analysis of the "common points" between the two test sets is incomplete. It is not clear why the F statistic is significant when comparing the two data sets. In addition, there is no information on how the F statistic was calculated, how the "critical F value" was defined, or what probability is associated with the 0.05 level of confidence. Please provide a detailed discussion of this statistical analysis, including the formulation of the hypothesis tested, the determination of the appropriate degrees of freedom, and any assumptions used, such as the assumed distributions of the two sample populations.