

framatome

**BHTP DNB Correlation Applied
with LYNXT**

BAW-10241PA,
Revision 1,
Errata 2NP,
Revision 0

Topical Report

June 2020

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Nature of Changes

Errata Rev	Section(s) or Page(s)	Description and Justification
0	All	Initial Issue

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1.0 SUMMARY

Framatome has identified an issue relating to the LYNXT implementation of CHF data from Test 51. Test 51 represents the CE14 HTP fuel subchannel geometry. It is the documented use of the Test 51 CHF test data that is errant.

When the Test 51 CHF data were evaluated to determine how well the BHTP CHF correlation predicted the test data, an error was discovered in the determination of the WPR term for the Test 51 geometry. As a result, the BHTP correlation, using LYNXT, has a trend of under-predicting the "predicted" heat flux versus the measured heat flux. A factor correcting the WPR based on the actual geometry of this test resolves the under-prediction.

The errata here capture these corrections to Test 51 and the impacts on the BHTP correlation, such as an increase in the design limit. Other errors previously identified, but having no material impact on the correlation, have now been incorporated as well.

The information contained herein does not materially affect the results of the existing safety evaluation.

The following errata apply to BAW-10241PA, Revision 1.

Test	Run No.	Local Quality	Local Mass Flux Mlb/h/ft ²	Exit Pressure psia	Inlet Enthalpy Btu/lb	Measured Heat Flux MBtu/h/ft ²	Calculated Heat Flux MBtu/h/ft ²	P/M Ratio	Predicted Elevation In	Faxial

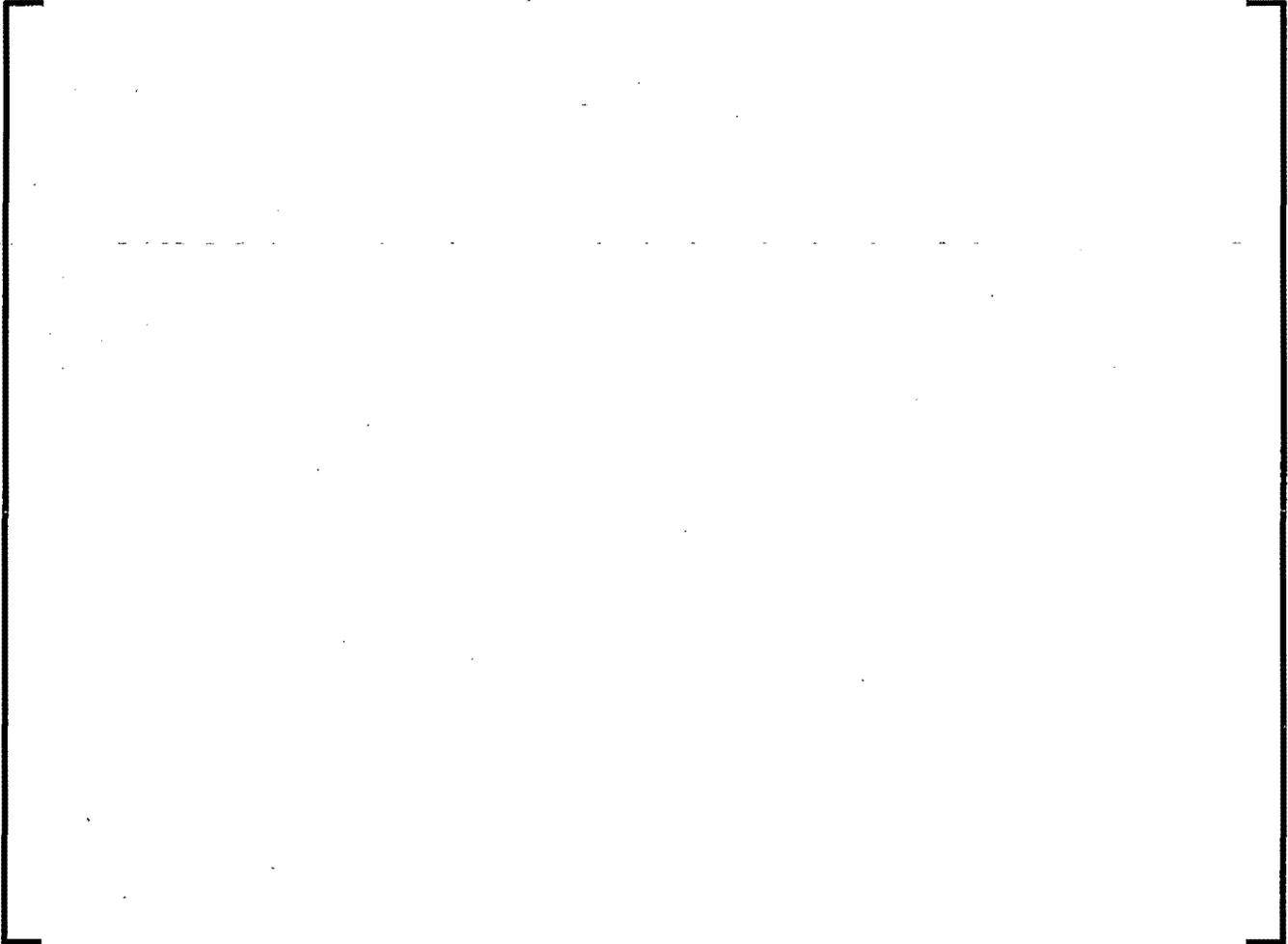
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Test	Run No.	Local Quality	Local Mass Flux Mlb/h/ft ²	Exit Pressure psia	Inlet Enthalpy Btu/lb	Measured Heat Flux MBtu/h/ft ²	Calculated Heat Flux MBtu/h/ft ²	P/M Ratio	Predicted Elevation In	Faxial

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Item 2

Figure 8 (Page A-13) and Figure 1.1 (Page 1-5) both are to be replaced by the following figure:



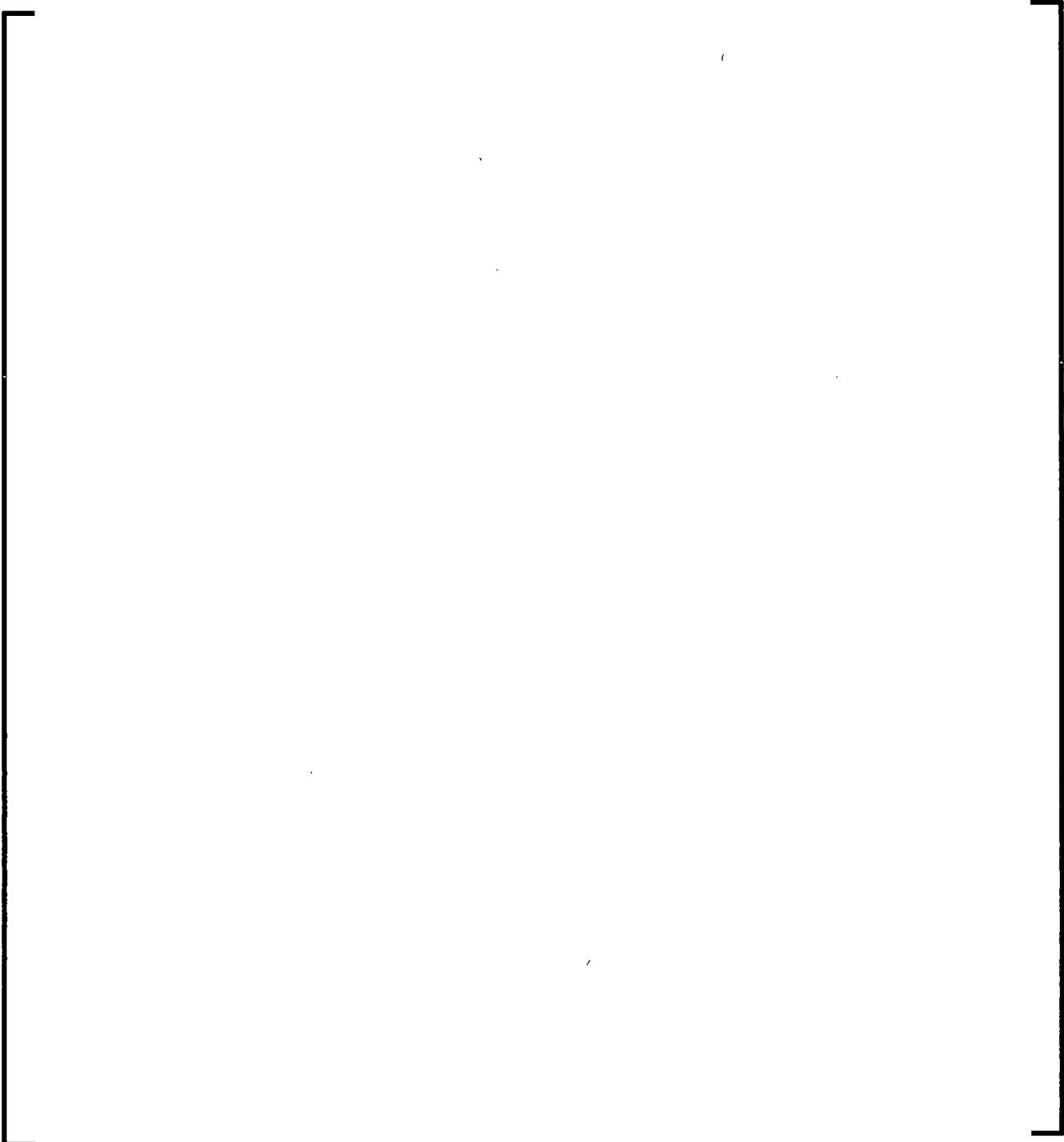
Item 3

Figure 13 (Page A-18) and Figure 3.9 (Page 3-10) both are to be replaced by the following figure:



Item 4

The data for Tests 40 and 51 changed. As a result the following points of Table 7-8 (Page 1-4) need to be updated. Changes to numerical values are **highlighted** for convenience.



Item 5

Figure 3.1 (Page 3-2) is to be replaced by the following figure:



Figure 3.2 (Page 3-3) is to be replaced by the following figure:



Figure 3.3 (Page 3-4) is to be replaced by the following figure:



Figure 3.4 (Page 3-5) is to be replaced by the following figure:



Item 6

Section 1.2, first paragraph, second sentence (Page 1-2) is to read as follows:

“The distribution is characterized []”

Section 1.2, third paragraph, second sentence (Page 1-2) is to read as follows:

“The 95/95 safety limit for the BHTP correlation is [] , derived using a [] as discussed in Section 4.0.”

Section 4.0, third paragraph, first, second and third sentences are to read as follows:

“For n equal to [] data points and m equal to [] , g is 95% at the 95% probability level. The [] value is [] . Hence, the value of the correlation safety limit is [] .”

Item 7

Figure 1.2 (Page 1-5) is to be replaced by the following figure:



Item 8

Section 2.2, description of WPR (Page 2-3) is to read as follows:

“ [

] ”

Item 9

Section A.3.2, first paragraph, last sentence (Page A-4) is to read as follows:

“The New data is about [] percent conservative overall with an average P/M of [] versus the Original average P/M of [] .”

Section A.3.3, second paragraph, second sentence (Page A-4) is to read as follows:

“In this subgroup [] data the mean P/M is [] with all of the data having a P/M less than 1.0.”

Section A.3.4, first paragraph, second sentence (Page A-4) is to read as follows:

“The 1400 psia data is conservative by about [] percent overall with all P/M values below a value of 1.0.”

Section A.4, first paragraph, fifth and sixth sentences (Page A-14) are to read as follows:

“The original HTP application was roughly [] percent conservative. The present BHTP application is about [] percent conservative.”

Item 10

Appendix A, Page A-17, Table A.3, row 2:

[]

Should be replaced with:

[]

Item 11

Table A.4, all runs in Test 51 (page A-20) are to be replaced with the following data.

Changes to numerical values are **highlighted** for convenience.



Item 12

Figure A.1 (Page A-6) is to be replaced by the following figure:



Figure A.2 (Page A-7) is to be replaced by the following figure:



Figure A.3 (Page A-8) is to be replaced by the following figure:



Figure A.4 (Page A-9) is to be replaced by the following figure:



Figure A.5 (Page A-10) is to be replaced by the following figure:



Figure A.6 (Page A-11) is to be replaced by the following figure:



Figure A.7 (Page A-12) is to be replaced by the following figure:



Figure A.8 (Page A-13) is to be replaced by the following figure:

