UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

September 7, 2022

Mr. Mark D. Sartain
Senior Vice President and Chief Nuclear Officer
Dominion Energy
Innsbrook Technical Center
5000 Dominion Blvd.
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SUBJECT: NORTH ANNA POWER STATION, UNIT NOS. 1 AND 2, SURRY POWER STATION UNIT NOS. 1 AND 2, AND MILLSTONE POWER STATION, UNIT NOS. 2 AND 3 – REVIEW OF APPENDIX E TO DOM-NAF-2, “QUALIFICATION OF THE FRAMATOME BWU-I CHF CORRELATION IN THE DOMINION ENERGY VIPRE-D COMPUTER CODE” (EPID L-2021-LLT-0000)

Dear Mr. Sartain:

By letter dated February 11, 2021 (Agencywide Documents Access and Management System (ADAMS) Accession No. ML21042B321), as supplemented by letters dated May 13, 2021 (ML21133A285), September 15, 2021 (ML21259A085), and February 17, 2022 (ML22052A064), Dominion Energy submitted a request for review and approval of Appendix E to Fleet Report DOM-NAF-2, “Qualification of the Framatome BWU-I CHF Correlation in the Dominion Energy VIPRE-D Computer Code.”

Although the February 11, 2021, submittal identified the docket numbers for each of the applicable plants, the Nuclear Regulatory Commission (NRC) staff was requested to approve of this fleet report on a generic basis. The licensee stated that plant-specific applications to implement Appendix E to DOM-NAF-2-A will be submitted to the NRC staff for review under separate correspondence.

The enclosed safety evaluation (SE) documents the basis for the NRC staff’s conclusion that Appendix E to Fleet Report DOM-NAF-2-A is acceptable for the licensee’s nuclear facilities described in the request. In accordance with normal practice for topical reports, the NRC requests that when the licensee incorporate the accepted version of this appendix into the report, that the accepted version incorporate this letter and the enclosed SE at the beginning of the appendix and be submit on the docket to the NRC.

~~The Enclosure to this letter contains Proprietary information. When separated from the Enclosure, this document is DECONTROLLED.~~

If the NRC's criteria or regulations change such that its conclusions as to the acceptability of this appendix are invalidated, then the licensees will be expected to revise and resubmit its respective documentation or submit justification for the continued applicability of the topical report without revision of the respective documentation.

Sincerely,

/RA/

G. Edward Miller, Project Manager
Plant Licensing Branch II-1
Division of Operating Reactor Licensing
Office of Nuclear Reactor Regulation

Docket Nos. 50-338, 50-339, 50-280,
50-281, 50-336, and 50-423

Enclosure:
Safety Evaluation

cc: Listserv

UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATED TO

DOMINION ENERGY NUCLEAR CONNECTICUT, INC.

AND

VIRGINIA ELECTRIC AND POWER COMPANY

NORTH ANNA POWER STATION, UNIT NOS. 1 AND 2

DOCKET NOS. 50-338 AND 50-339

SURRY POWER STATION, UNIT NOS. 1 AND 2

DOCKET NOS. 50-280 AND 50-281

MILLSTONE POWER STATION UNIT NOS. 2 AND 3

DOCKET NOS. 50-336 AND 50-423

1.0 INTRODUCTION

By letter dated February 11, 2021 (Reference 1) and (Reference 2), Dominion Energy (Dominion or the licensee) submitted Appendix E to Fleet Report DOM-NAF-2 “Qualification of the Framatome BWU-I CHF [Critical Heat Flux] model in the Dominion Energy VIPRE-D Computer Code,” to the U.S. Nuclear Regulatory Commission (NRC) for review and approval. The purpose of this report was to provide the validation for the BWU-I CHF model’s use in the VIPRE-D computer code.

The complete list of correspondence between the U. S. Nuclear Regulatory Commission (NRC) and Dominion is provided in Table 1 below.

Table 1: List of Key Correspondence

Sender	Document	Document Date	Reference
Dominion	Submittal Letter	February 11, 2021	(Reference 1)
Dominion	Topical Report	February 11, 2021	(Reference 2)
NRC	Acceptance Letter	March 10, 2021	(Reference 3)
NRC	Proprietary Determination	March 18, 2021	(Reference 4)
Dominion	Supplement 1	May 13, 2021	(Reference 5)

Enclosure

Sender	Document	Document Date	Reference
NRC	Proprietary Determination	June 8, 2021	(Reference 6)
NRC	RAI	August 13, 2021	(Reference 7)
Dominion	RAI Response	September 15, 2021	(Reference 8)
NRC	Audit Plan	November 30, 2021	(Reference 9)
Dominion	Error Correction Letter	February 17, 2022	(Reference 10)
NRC	Audit Report	April 14, 2022	(Reference 11)

In performing this review, the NRC staff applied a credibility assessment framework which focused on critical boiling transition[1] models (as described in DRAFT NUREG/KM-0013 (Reference 12). In support of its review, the NRC staff conducted a virtual regulatory audit on January 26, February 1, and April 1, 2022. The audit plan was dated November 30, 2021 (Reference 9). The audit report was issued on April 14, 2022 (Reference 11).

2.0 REGULATORY EVALUATION

Criterion 10 of 10 CFR, Part 50, Appendix A, "General Design Criteria for Nuclear Power Plants" introduces the concept of specified acceptable fuel design limits (SAFDLs) which are limits placed on certain variables to ensure that the fuel does not fail. One such SAFDL is associated with critical boiling transition (CBT) which is defined as a transition from a boiling flow regime that has a higher heat transfer rate to a flow regime that has a significantly lower heat transfer rate. If the reduction in the heat transfer rate and resulting increase in surface temperature is large enough, the surface may weaken or melt. In a nuclear power plant, this condition could result in fuel damage.

In order to ensure that such a CBT does not occur, two potential SAFDLs are described in Standard Review Plan, Section 4.4, Thermal and Hydraulic Design (Reference 13):

(a) there should be a 95-percent probability at the 95-percent confidence level that the hot rod in the core does not experience a DNB [departure from nucleate boiling] or boiling crisis condition during normal operation or AOOs [anticipated operational occurrence], or

(b) at least 99.9 percent of the fuel rods in the core will not experience a DNB or boiling crisis during normal operation or AOOs.

Typically, SAFDL (a) is associated with PWRs [pressurized-water reactors] and SAFDL (b) is associated with BWRs [boiling water reactors]. CBT models such as BWU-I which will be used on PWR fuel are necessary to ensure that the above SAFDLs can be satisfied. The objective of this review was to determine if BWU-I could result in accurate predictions, such that there would

[1] Critical boiling transition is the name given to the phenomena which occurs when a flow regime that has a higher heat transfer rate transitions to a flow regime that has a significantly lower heat transfer rate. Historically, terms such as critical heat flux, departure from nucleate boiling, and critical power have been used. However, the NRC staff needed a way to separate the general phenomena occurring (i.e., critical boiling transition) from a specific type of phenomena which may occur (e.g., departure from nucleate boiling, dryout) and from the specific values of certain parameters which are often used to signify such a transition has occurred (e.g., critical heat flux, critical power).

be a 95-percent probability at the 95-percent confidence level that the hot rod in the core does not experience CBT during normal operation or AOOs.

3.0 TECHNICAL EVALUATION

To perform this evaluation, the NRC staff used a framework similar to the framework used in the NRC staff's safety evaluation of the ORFEO-CHF model (Reference 14) and (Reference 15), the ACE/ATRIUM-11 CPR correlation (Reference 16), (Reference 17) and (Reference 18), and the NuScale Power CHF model (Reference 19), (Reference 20) and (Reference 21), respectively. More details about the framework applied in this review can be found in Reference 12.

In Reference 2, Dominion describes how the BWU-I CHF model behaves over its proposed domain of usage in the VIPRE-D computer code. Both the VIPRE-D computer code (Reference 22) and the BWU-I CHF model (Reference 23) have been previously reviewed and approved by the NRC staff. This review will follow the same structure as the review performed for the Palo Verde fuel transition (Reference 24), in order to validate the application of BWU-I (Reference 23) in the VIPRE-D computer code.

This framework described in Reference 12 is expressed using concepts from goal structuring notation (GSN). In GSN, the safety case is presented by a structure which contains multiple goals. The top goal is a high level statement that is desired to be true. The top goal is then decomposed into a set of goals (i.e., sub-goals). In this decomposition, proving each sub-goal is true is considered equivalent to proving the top goal is true. Further, each sub-goal is further decomposed, and so on, until a set of goals are obtained which can be demonstrated to be true through some basic evidence. For clarity, this last set of goals which are demonstrated to be true via evidence are termed *base goals*.

As described in Reference 12 and Applied in (Reference 25), (Reference 26) and (Reference 20), for critical boiling transition (CBT) models, the top goal "G" is: *The critical boiling transition model can be trusted* in reactor safety analyses. Based on the staff's experience reviewing these models, a study of previous safety evaluations, and multiple discussions with various industry experts, this goal is decomposed into the three sub-goals given in Figure 1.

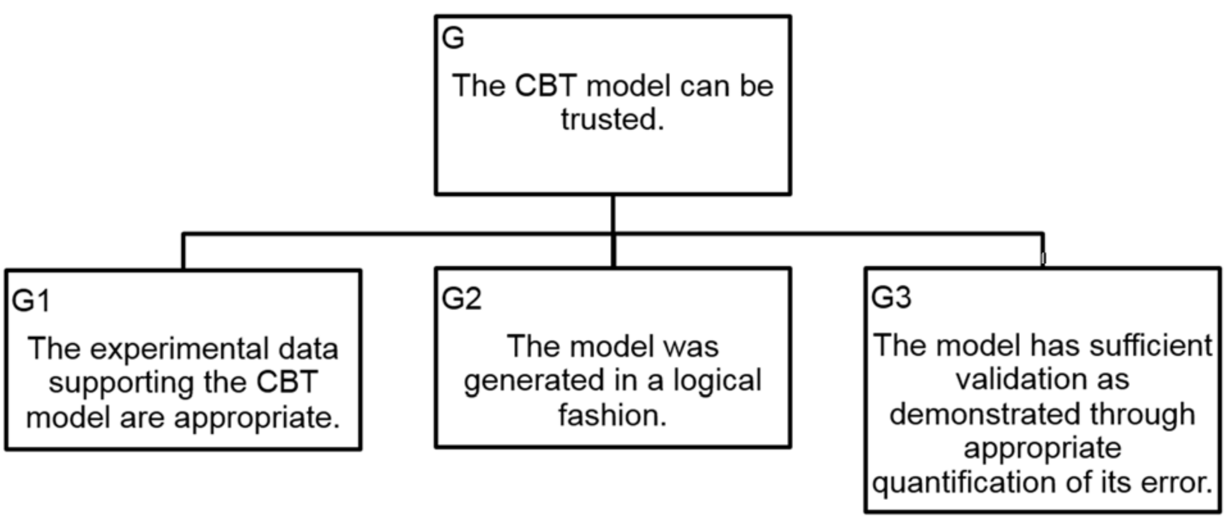

Figure 1: Decomposing G - Main Goal

The BWU-I CHF model has already been approved, and therefore the NRC staff has previously considered these three goals to have been met. The implementation of the BWU-I into VIPRE-D would not impact the NRC staff's previous findings on G1 and G2, as those are independent of the computer code in which the model is applied. However, it would impact G3 as the model's error can only be obtained using a subchannel code such as VIPRE-D with the specific CHF model. Therefore, the NRC staff will focus its review on ensuring that the validation of the BWU-I CHF model does not change when applying the model to VIPRE-D computer code with respect to goal G3.

Validation is the accumulation of evidence which is used to assess the claim that a model can predict a real physical quantity (Reference 27). Thus, validation is a continuing process where more evidence can always be obtained to bolster this claim. However, at some point, when the accumulation of evidence is considered sufficient to make the judgment that the model can be trusted for its given purpose, the model is said to be validated. Demonstrating the model validation is appropriate is accomplished using the four sub-goals given in Figure 2 below.

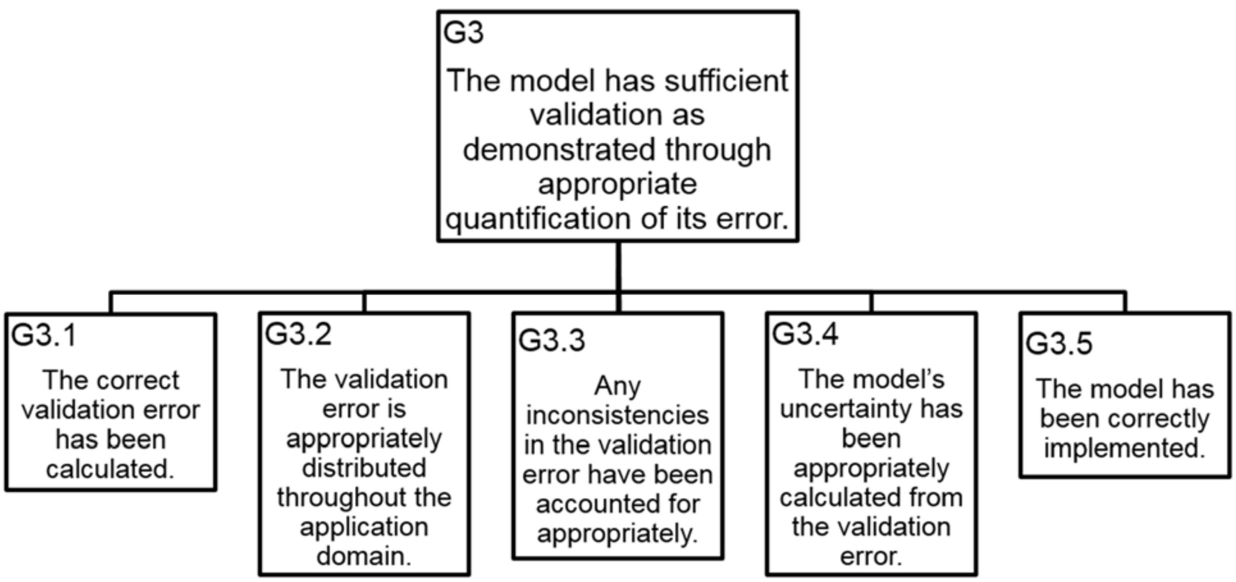

Figure 2: Decomposing G3 – Model Validation

3.1 Validation Error

Validation Error
The correct validation error has been calculated.
G3.1, Review Framework for CBT Models

The validation error, G3.1, is obtained from a ratio of the measured CHF value and the predicted CHF value. However, there are methods in which the measured and predicted CHF values could be determined. It is important that the same method (e.g., subchannel of lowest

DNBR, subchannel where CHF was measured) is used in both the initial approval of BWU-I in VIPRE-D and future applications of BWU-I in VIPRE-D. In response to RAI-01 (Reference 8), Dominion confirmed that their process to qualify CHF correlations is consistent with the approach used by the vendor during the development of the correlation. Because the staff identified that the method of calculating the validation error will be consistent between the validation and future application of BWU-I in VIPRE-D, the NRC staff concludes that this goal has been met.

3.2 Data Distribution

The second sub-goal in demonstrating that the BWU-I CHF model's validation was appropriate is to demonstrate that the data is appropriately distributed, G3.2, throughout the application domain of the VIPRE-D computer code. This is typically demonstrated using the six sub-goals as given in Figure 3 below.

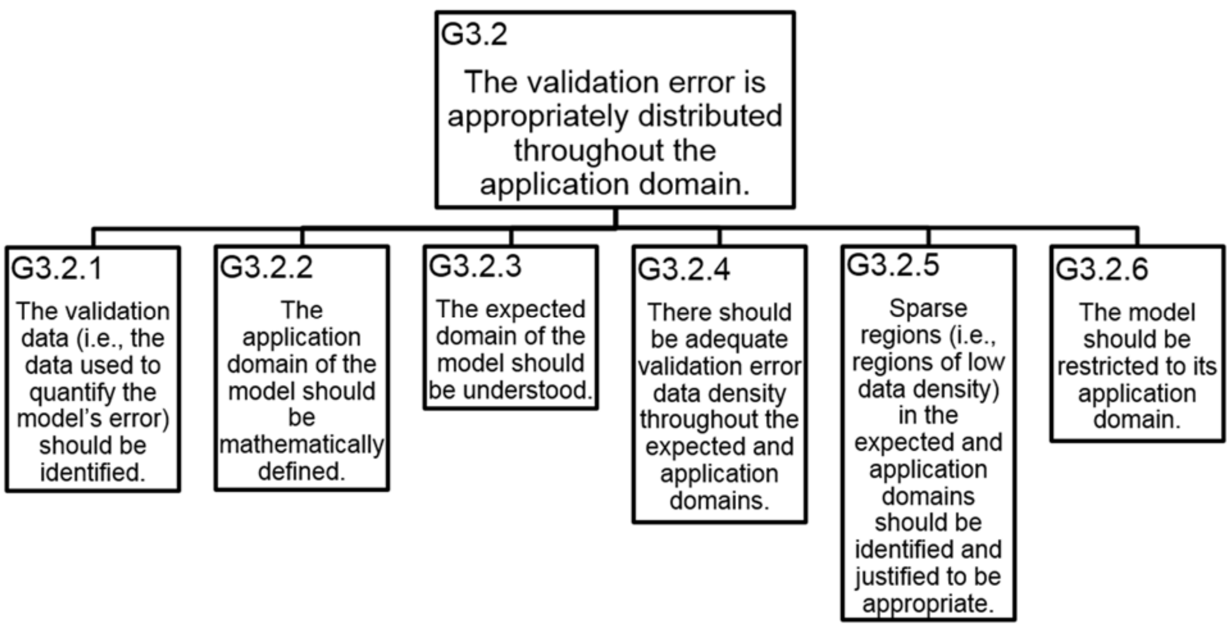

Figure 3: Decomposing G3.2 – Data Distribution

Per Reference 12, no further decompositions of the sub-goals were deemed necessary. Therefore, the evidence demonstrating the following goals were met are provided below.

3.2.1 Validation Data

Validation Data

The validation data (i.e., the data used to quantify the model's error) should be identified.

G3.2.1, Review Framework for CBT Models

In Reference 2, Dominion identified that **[[**

]] Based on Dominion's identified, documented and docketed validation data the NRC staff found this acceptable; therefore, the NRC staff concludes that this goal has been met.

3.2.2 Application Domain

Application Domain
The application domain of the model should be mathematically defined.
G3.2.2, Review Framework for CBT Models

In Reference 2, Dominion identified the application domain of the BWU-I correlation that is consistent with that approved by the NRC for DOM-NAF-2-P-A (Reference 22). Because Dominion has identified this domain and it is consistent with what was previously approved, the NRC staff has concludes that this goal has been met.

3.2.3 Expected Domain

Expected Domain
The expected domain of the model should be understood.
G3.2.3, Review Framework for CBT Models

This review is focusing on the implementation of the BWU-I CHF model into VIPRE-D. Because the same validation data was used in the initial approval of the BWU-I model as used here to demonstrate appropriate validation in VIPRE-D, and because the model is being used over the same application domain, the NRC staff has determined that the expected domain would not be impacted by this implementation. Therefore, the NRC staff concludes that this goal does not apply in this review.

3.2.4 Data Density

Data Density
There should be an appropriate data density throughout the expected domain.
G3.2.4, Review Framework for CBT Models

This review is focusing on the implementation of the BWU-I CHF model into VIPRE-D. Because the same validation data was used in the initial approval of the BWU-I model as used here to demonstrate appropriate validation in VIPRE-D, and the model is being used over the same application domain, the NRC staff has determined that the density of the data in the application or expected domain would not be impacted by this implementation. However, Dominion did request an extension of the application of BWU-I from "Inconel" grids to AFA type mixing vane grids.

In response to RAI-02 (Reference 8), Dominion provided additional information on the application of the BWU-I CHF correlation to the AFA type mixing vanes. Dominion pointed to the example of the application of the creation of the WRB-2M CHF correlation from the WRB-2 CHF Correlation (Reference 28). The NRC staff examined the staff's previous findings in the WRB-2M CHF correlation and confirmed that the application of the BWU-I CHF correlation to AFA fuel would be consistent with the staff's previous acceptance of the WRB-2M CHF correlation with respect to the data density. Because the data density in the expected domain is consistent with an NRC staff's previous review the NRC staff concludes that this goal has been met.

3.2.5 Sparse Regions

Sparse Regions
Sparse regions (i.e., regions of low data density) in the expected domain should be identified and justified to be appropriate.
G3.2.5, Review Framework for CBT Models

This review is focusing on the implementation of the BWU-I CHF model into VIPRE-D. Because the same validation data was used in the initial approval of the BWU-I model as used here to demonstrate appropriate validation in VIPRE-D, and the model is being used over the same application domain, the NRC staff has determined that the justification of use in any sparse regions would not be impacted by this implementation. However, Dominion did request an extension of the application of BWU-I from "Inconel" grids to AFA type mixing vane grids.

In response to RAI-02 (Reference 8), Dominion provided additional information on the application of the BWU-I CHF correlation to the AFA type grids. Dominion pointed to the example of the application of the creation of the WRB-2M CHF correlation from the WRB-2 CHF Correlation (Reference 28). The NRC staff examined the staffs previous findings in the WRB-2M CHF correlation and confirmed that the application of the BWU-I CHF correlation to AFA fuel would be consistent with the staff's previous acceptance of the WRB-2M CHF correlation with respect to the sparse regions. Because there are no additional sparse regions in the expected domain which have not previously been addressed, the NRC staff concludes that this goal has been met.

3.2.6 Restricted Domain

Restricted Domain
The model should be restricted to its application domain.
G3.2.6, Review Framework for CBT Models

In response to RAI-03 (Reference 8), Dominion confirmed that the BWU-I correlation would be controlled through both automatic controls in the computer code or administrative controls for those parameters that are not automatically controlled. Because Dominion has identified how the models were restricted to its application domains, the NRC staff concludes that this goal has been met.

3.3 Consistent Model Error

The third sub-goal in demonstrating that the model's validation was appropriate is to demonstrate that the model error is consistent over the application domain. This is typically demonstrated using the three sub-goals as given in Figure 4 below.

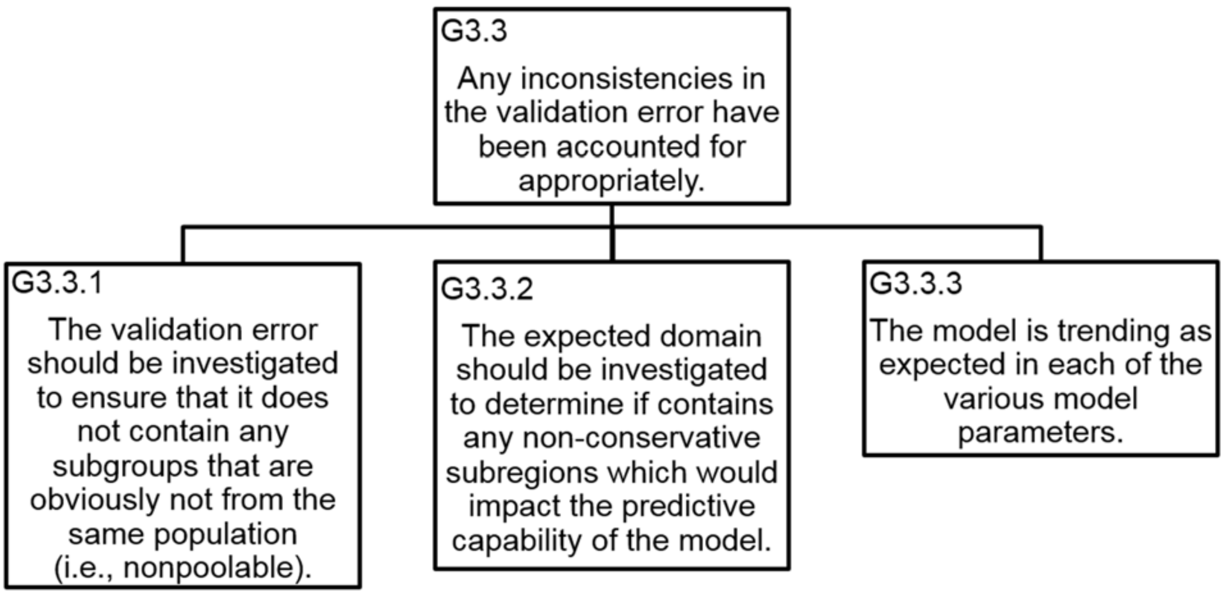

Figure 4: Decomposing G3.3 – Consistent Model Error

Per Reference 12, no further decompositions of the sub-goals were deemed necessary. Therefore, the evidence demonstrating the following goals were met are provided below.

3.3.1 Poolability

> **Poolability**
>
> *The validation error should be investigated to determine if it contains any sub-groups which are obviously not from the same population (i.e., not poolable).*
>
> G3.3.1, Review Framework for CBT Models

In their submittal, Dominion provided an analysis of the poolability of the various data sets within the validation error. For the majority of the data sets, Dominion did not identify any non-poolable data sets which would impact the departure from nucleate boiling ratio (DNBR) limit. However, Dominion did identify a single non-poolable data set at pressures below 1500 psia (pounds per square inch absolute). As such, Dominion increased the DNBR limit at those pressures to 1.51 which conservatively bounds all of the low-pressure data. The NRC staff further investigated the validation error and could not identify any other non-poolable data sets.

Because Dominion has identified the main subgroups and demonstrated that those subgroups were poolable or conservatively adjusted the DNBR limit to account for any non-poolable subgroups, the NRC staff found that acceptable and concludes that this goal has been met.

3.3.2 Non-Conservative Subregions

Non-Conservative Subregions
The expected domain should be investigated to determine if it contains any non-conservative subregions which would impact the predictive capability of the model.
G3.3.2, Review Framework for CBT Models

Dominion identified a possible non-conservative subregion at pressures below 1500 psia. **[[**

]]

The NRC staff found that Dominion's treatment of the potential non-conservative subregion and change in design limit would result in a reasonable or protection against CHF for the entire domain. Further, after analyzing the data, neither Dominion nor the NRC staff found evidence of any additional non-conservative subregions. Because the potential non-conservative subregion has been appropriately treated with a change in the design limit and there is no evidence of any additional non-conservative subregions, the NRC staff concludes that this goal has been met.

3.3.3 Model Trends

Model Trends
The model is trending as expected in each of the various model parameters.
G3.3.3, Review Framework for CBT Models

Dominion provided plots comparing the measured over predicted ratios from BWU-I in VIPRE-D versus key parameters (pressure, mass flux, and local quality). These plots demonstrated that the BWU-I model in VIPRE-D did not have any adverse error trends with the key parameters. Additionally, Dominion provided the data used to validate the model and the NRC was able to analyze other parameters (test array, cell type, and power shape) and was able to confirm that there were no trends with these parameters.

[[

]] Because BWU-I was previously reviewed and approved and the model's error is trending as expected in each parameter and the correlation can be limited to make its predictions of CHF reasonable or conservative, the NRC staff concludes that this goal has been met.

3.4 Quantified Model Error

The fourth sub-goal in demonstrating that the model's validation was appropriate is to demonstrate that the model error has been appropriately quantified over the application domain. This is typically demonstrated using the three sub-goals as given in Figure 5 below.

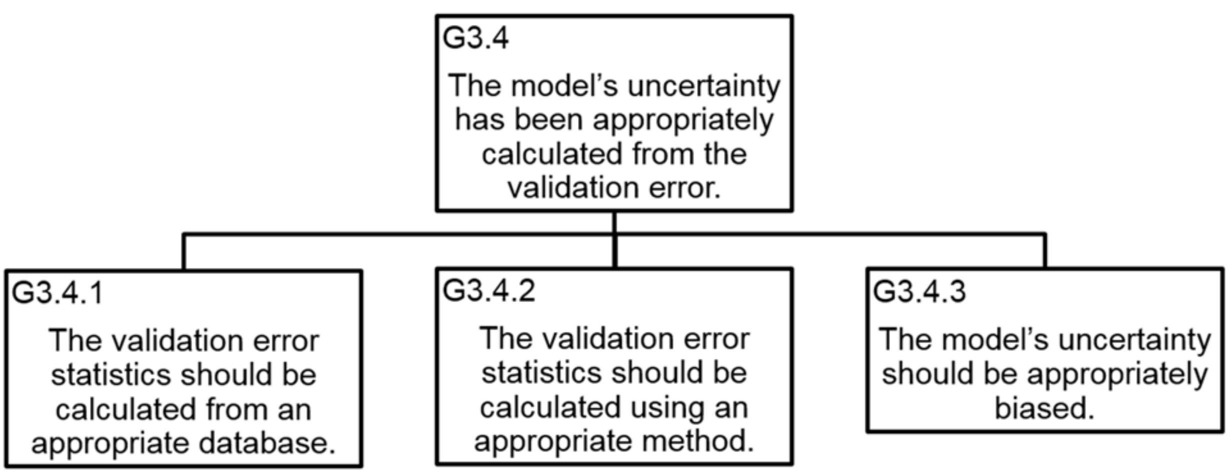

Figure 5: Decomposing G3.4 – Quantified Model Error

Per Reference 12, no further decompositions of the sub-goals were deemed necessary. Therefore, the evidence demonstrating the following goals were met are provided below.

3.4.1 Error Data Base

Error Data Base
The validation error statistics should be calculated from an appropriate database.
G3.4.1, Review Framework for CBT Models

This review is focusing on the implementation of the BWU-I CHF model into VIPRE-D. The same validation data was used in the initial approval of the BWU-I CHF model as used here to demonstrate appropriate validation in VIPRE-D. The validation error was based on the predictions of the computer code compared to the measured data. Because Dominion provided the validation, which demonstrates that BWU-I conservatively predicts CHF in both VIPRE-D, and that comparison was consistent with the initial DNBR limit for BWU-I, the NRC staff concludes that this goal has been met.

3.4.2 Statistical Method

Statistical Method
The validation error statistics should be calculated using an appropriate method.
G3.4.2, Review Framework for CBT Models

Dominion demonstrated that the data set was normally distributed and then calculated the 95/95, as described in Section 2.0 of this SE, using Owen's table, consistent with previous reviews (References 22, 23, and 24) and as described in the licensee's submittal. Because the licensee proposed a statistical method commonly used for this application, the NRC staff has concluded that this goal has been met.

3.4.3 Appropriate Bias for Model Uncertainty

Appropriate Bias
The model's error should be appropriately biased in generating the model uncertainty.
G3.4.3, Review Framework for CBT Models

Based on the data provided in the application, the NRC staff found that no additional bias was needed in generating the model uncertainty. Because the statistical method used to determine the DNBR limit had been previously approved for BWU-I and that same method was applied in this application, the NRC staff concludes that this goal has been met.

3.5 Model Implementation

The fifth sub-goal in demonstrating that the model's validation was appropriate is to demonstrate that the model will be implemented in a manner consistent with its validation. This is typically demonstrated using the three sub-goals as given in Figure 6 below.

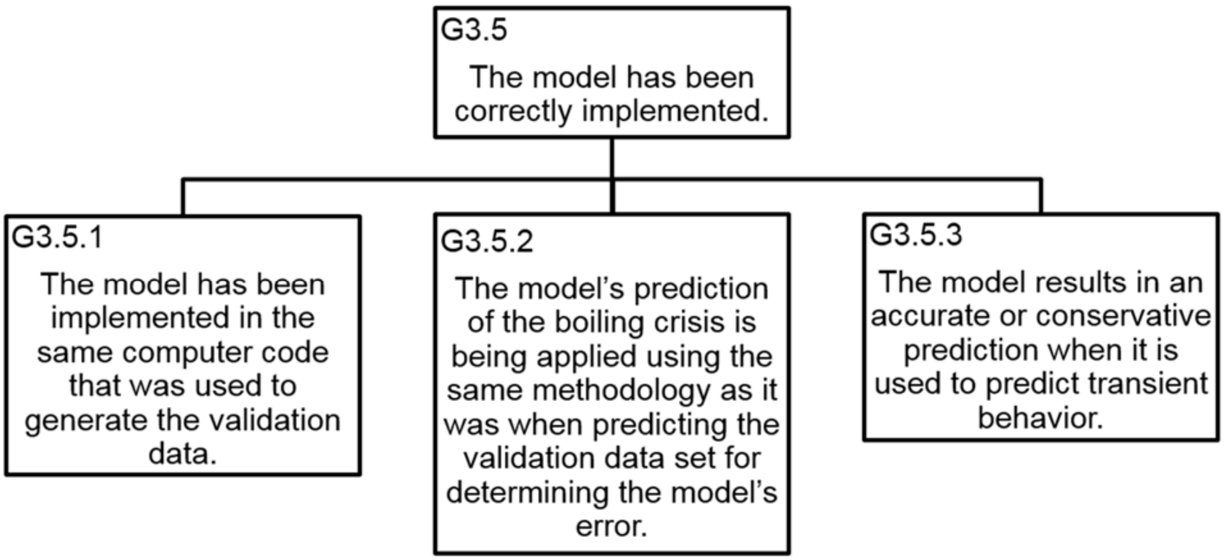

Figure 6: Decomposing G3.5– Model Implementation

Per Reference 12, no further decompositions of the sub-goals were deemed necessary. Therefore, the evidence demonstrating the following goals were met are provided below.

3.5.1 Same Computer Code

Same Computer Code

The model has been implemented in the same computer code which was used to generate the validation data.

G3.5.1, Review Framework for CBT Models

The purpose of this part of the review was to re-validate the BWU-I CHF model in VIPRE-D. Because the validation of BWU-I was performed in the same computer code (VIPRE-D) that the model will be applied with, the NRC staff has determined that this goal has been satisfied. Therefore, the NRC staff concludes that this goal has been satisfied.

3.5.2 Same Methodology

> **Same Methodology**
>
> *The model's prediction of the critical boiling transition is being applied using the same methodology as it was when predicting the validation data set for determining the validation error.*
>
> G3.5.2, Review Framework for CBT Models

The purpose of this part of the review was to revalidate the BWU-I CHF model and how it is applied in the evaluation framework of VIPRE-D. In response to RAI-01 (Reference 8), Dominion confirmed that their process to qualify CHF correlations is consistent with the approach used by the vendor during the development of the correlation. Therefore, the NRC staff concludes that this goal has been satisfied.

3.5.3 Transient Prediction

> **Transient Prediction**
>
> *The model results in an accurate or conservative prediction when it is used to predict transient behavior.*
>
> G3.5.3, Review Framework for CBT Models

This review is focusing on the implementation of the BWU-I CHF model into VIPRE-D. Because the model is being used in a similar manner as approved in its initial approval, and because the model is being used in a similar manner as other CHF models, the NRC staff has determined that model's use in transient predictions would not be impacted by this implementation. Therefore, the NRC staff concludes that this goal does not apply in this review.

3.6 Model Error

In Reference 10, Dominion informed the NRC of an error identified in the VIPRE-D analysis where VIPRE-D could ignore mixing vane grids in the top half of the fuel assembly within guide tube cells. Further, they stated that the error had been corrected. The NRC staff determined that, because the licensee has already corrected the error, it does not impact any of the NRC staff's findings in this evaluation.

4.0 <u>CONCLUSION</u>

Based on the above information, the NRC staff concludes that, as limited in Section 4.1 of this SE, the validation of BWU-I CHF model for use in VIPRE-D has been demonstrated through the quantification of its error when compared with experimental data. Therefore, the NRC staff finds that there is reasonable assurance that the BWU-I CHF correlation will be able to accurately or conservatively predict the CHF behavior on "Inconel" mixing vane design grids ("Inconel" referring specifically to the grid type specified in the initial approval of the BWU-I

CHFcorrelation). Further, the NRC staff finds that there is reasonable assurance that the BWU-I CHF correlation will be able to accurately or conservatively predict the CHF behavior on AFA mixing vane design grids given the conditions and limitations listed below.

The BWU-I CHF correlation is approved with a design limit of 1.23 for pressure above 1500 psia, and a design limit of 1.51 for pressures below 1500 psia. The application of the BWU-I CHF correlation is limited to the domain as specified in its initial approval (Reference 23) which has been repeated in Table E.6-2 of Appendix E to DOM-NAF-2.

4.1 Limitations and Conditions

The NRC staff applies the following limitations and conditions to it's approval of Appendix E to Fleet Report DOM-NAF-2:

1. For application of the BWU-I CHF correlation to AFA grids, the maximum mass flux which may be used in the correlation is **[[ ]]** Mlbm/hr-ft^2. Dominion may use the correlation at mass fluxes above **[[ ]]**, but they may not credit any additional increase in CHF from the correlation and must use a maximum value of **[[ ]]** Mlbm/hr-ft^2 for the mass flux in the correlation itself.

2. BWU-I is approved over the application domain given in Table E.6-2 of the topical report for use with AFA grids. However, this approval is given under the assumption that fuel assemblies with AFA grids operating at lower qualities **[[ ]]** have a minimal impact on the limiting minimum DNBR values. Limiting minimum DNBR is defined as the scenario in which the analyzed event approaches the design limit. This condition does not apply, regardless of the local quality, for events in which the limiting DNBR is sufficiently far from the design limit **[[ ]]** Should application of BWU-I for AFA grids in the low-quality domain become limiting, Dominion would need to justify an appropriate quantification of the BWU-I uncertainty for AFA grids in this domain.

5.0 REFERENCES

1 Sartain, Mark D., Dominion Energy, letter to U. S. Nuclear Regulatory Commission, "Virginia Electric and Power Company (Dominion Energy Virginia), North Anna and Surry Power Stations, Units 1 and 2, Dominion Energy Nuclear Connecticut, Inc. (DENC) Millstone Power Station, Units 2 and 3 - Request for Approval of Appendix E of Fleet," Report DOM-NAF-2 Qualification of the Framatome BWU-I CHF Correlation in the Dominion Energy VIPRE-D Computer Code," February 11, 2021 (ADAMS Accession No. ML21042B321).

2 Sartain, Mark D., Dominion Energy, Attachment 1 of Letter to U. S. Nuclear Regulatory Commission (NRC), *Appendix E to Fleet Report DOM-NAF-2, Qualification of the Framatome BWU-I CHF Correlation in the Dominion Energy VIPRE-D Computer Code*., February 11, 2021 (ML21042B322 - Proprietary).

3 U. S. Nuclear Regulatory Commission (NRC) Email from Ed Miller to Diane Aitken, Dominion Energy, *Acceptance Review of Topical Report DOM-NAF-2 VIPRE-D*., March 10, 2021 (ML21069A352).

4 U. S. Nuclear Regulatory Commission (NRC) letter to Mark D. Sartain, Dominion Energy, *Request for Withholding Information from Public Disclosure for North Anna Power Station, Units 1 and 2, Surry Power Station, Units 1 and 2, and Millstone Power Station, Units 2 and 3, Request for Withholding, Appendix E of Fleet Report DOM-NAF-2*., March 18, 2021 (ML21075A259).

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Date: September 7, 2022

SUBJECT: NORTH ANNA POWER STATION, UNIT NOS. 1 AND 2, SURRY POWER STATION UNIT NOS. 1 AND 2, AND MILLSTONE POWER STATION, UNIT NOS. 2 AND 3 – REVIEW OF APPENDIX E TO DOM-NAF-2, "QUALIFICATION OF THE FRAMATOME BWU-I CHF CORRELATION IN THE DOMINION ENERGY VIPRE-D COMPUTER CODE" (EPID L-2021-LLT-0000) DATED SEPTEMBER 7, 2022

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