St. Lucie Unit 1
Extended Power Uprate
Licensing Report

Attachment 5
Appendix A

Safety Evaluation Report Compliance

This coversheet plus 15 pages

A.1 SAFETY EVALUATION REPORT COMPLIANCE INTRODUCTION

This appendix is a summary of NRC-approved codes and methods used in the Section 2.8.5 series of licensing reports (LRs) for the St. Lucie Unit 1 extended power uprate (EPU). The appendix addresses compliance with the limitations, restrictions, and conditions specified in the approving safety evaluation of the applicable codes and methods (NRC Review Standard (RS)-001 Review Standard for Extended Power Uprates, Section 2.1, Matrix 8, Note 7).

Table A.1-1 presents an overview of the safety evaluation reports (SER) by codes and methods. For each SER, the applicable report subsections and appendix subsections are listed.

Table A.1-1
Safety Evaluation Report Compliance Summary

No.	Subject	Topical Report (Reference)/ Date of NRC Acceptance	Code(s)	Limitation, Restriction, Condition	Report Section	Appendix Section
1.	Non-LOCA Safety Analysis	EMF-2310(P)(A) (Reference A.1-1) May 2004	S-RELAP5	Yes	2.8.5.1.1 2.8.5.1.2 2.8.5.2.1 2.8.5.2.3 2.8.5.2.5 2.8.5.3.1 2.8.5.3.2 2.8.5.4.1 2.8.5.4.2 2.8.5.4.3 2.8.5.4.5 2.8.5.4.6 2.8.5.6.1 2.8.5.6.2	A.2
		EMF-1961(P)(A) (Reference A.1-11) July 2000	XCOBRA-IIIC	Yes		A7
			RODEX2	No		N/A
2.	Small Break LOCA	EMF-2328(P)(A) (Reference A.1-2) March 2001	S-RELAP5	Yes	2.8.5.6.3	A.3
			RODEX2	No		N/A
3.	Post LOCA Boric Acid Precipitation	CENPD-254-P-A (Reference A.1-3) July 30, 1979 Suspended in References A.1-4 and A.1-5)	BORON	Yes	2.8.5.6.3	A.4
4.	LOCA Hydraulic Blowdown Loads	CENPD-252-P-A (References A.1-6 and A.1-7)	CEFLASH-4B	YES	2.8.5.6.3	A.5

Table A.1-1 (Continued)
Safety Evaluation Report Compliance Summary

No.	Subject	Topical Report (Reference)/ Date of NRC Acceptance	Code(s)	Limitation, Restriction, Condition	Report Section	Appendix Section
5.	RLBLOCA	EMF-2103(P)(A) (Reference A.1-8)/ April 2003	S-RELAP5	Yes	2.8.5.6.3	A.6
		ANF-90-145(P)(A) (Reference A.1-9)/ April 1996	RODEX3A	Yes		A.6
		XN-CC-39 (A) (Reference A.1-12)/ October 1978	ICECON	No		N/A
6.	Neutronics	EMF-96-029(P)(A) (Reference A.1-10)/ October 29, 1996	PRISM	None for Non-LOCA Transient Analysis	2.8.5.1.2 2.8.5.4.3	N/A
7.	Nuclear Design(1)	WCAP-11596-P-A (Reference A.1-13)	PHOENIX-P/ANC	None for Non-LOCA Transient Analysis	2.8.5 Sections	N/A

1. References A.1-10 and A.1-13 are both currently applicable for St. Lucie Unit 1 nuclear design. There is no change to this due to EPU.

References

A.1-1 EMF-2310(P)(A), Revision 1, SRP Chapter 15 Non-LOCA Methodology for Pressurized Water Reactors, Framatome ANP, May 2004.

A.1-2 EMF-2328(P)(A), Revision 0, PWR Small Break LOCA Evaluation Model, S-RELAP5 Based, Framatome ANP, March 2001.

A.1-3 CENPD-254-P-A, Post-LOCA Long Term Cooling Evaluation Model, June 1980.

A.1-4 NRC letter, Suspension of NRC Approval for use of Westinghouse Topical Report CENPD-254-P, 'Post-LOCA Long-Term Cooling Model,' Due to Discovery of Non-Conservative Modeling Assumptions During Calculations Audit, R. A. Gramm, August 1, 2005. (ADAMS No. ML051920310)

A.1-5 NRC letter, Clarification of NRC Letter Dated August 1, 2005, Suspension of NRC Approval for use of Westinghouse Topical Report CENPD-254-P, 'Post-LOCA Long-Term Cooling Model,' Due to Discovery of Non-Conservative Modeling Assumptions During Calculations Audit (TAC MB1365), D. S. Collins, November 23, 2005. (ADAMS No. ML053220569)

A.1-6 CENPD-252-P-A, Blowdown Analysis Method - Method for the Analysis of Blowdown Induced Forces in a Reactor Vessel, July 1979.

A.1-7 R.L. Baer (NRC) to A. E. Scherer (CE), Staff Evaluation of Topical Report CENPD-252-P, February 12, 1979.

A.1-8 EMF-2103(P)(A), Revision 0, Realistic Large Break LOCA Methodology for Pressurized Water Reactors, April 2003.

A.1-9 ANF-90-145(P)(A), Revision 0, RODEX3 Fuel Rod Thermal-Mechanical Response Evaluation Model, Volume 1, Theoretical Manual, Volume II, Thermal and Gas Release Assessments, and Supplement 1, Siemens Power Corporation, April 1996.

A.1-10 EMF-96-029(P)(A), Volumes 1 and 2, Reactor Analysis Systems for PWRS Volume 1 – Methodology Description, Volume 2 – Benchmarking Results, Siemens Power Corporation, January 1997.

A.1-11 EMF-1961(P)(A), Revision 0, Statistical Setpoint/Transient Methodology for Combustion Engineering Type Reactors, Siemens Power Corporation, July 2000.

A.1-12 XN-CC-39 (A), Revision 1, ICECON: A Computer Program Used to Calculate Containment Back Pressure for LOCA Analysis Including Ice Condenser Plants, EXXON Nuclear Company, INC, October 1978.

A.1-13 WCAP-11596-P-A, Qualification of the PHOENIX-P/ANC Nuclear Design System for pressurized Water Reactor Cores, June 1988.

A.2 S-RELAP5 NON-LOCA SAFETY ANALYSES

The NRC SER can be found in the front of EMF-2310(P)(A) (Reference A.2-1). This SER concludes that the S-RELAP5 code is capable of addressing the thermal-hydraulic response of the target non-LOCA events in a conservative manner. Following is a listing of conditions for use of the method made in the SER and AREVA NP's response.

Table A.2-1
S-RELAP5 Non-LOCA Safety Analyses

Limitations, Restrictions, and Conditions
1. For each licensing basis event analyzed, the applicant must, always, justify the methodology used whether by reference to S-RELAP5 or whatever methodology has been used.
Compliance For each non-LOCA transient event analysis supporting the St. Lucie Unit 1 EPU documented in the Section 2.8.5 series of LRs, reference to the applied methodologies is provided.
2. The individual applicant must still provide justification for the specific application of the code which is expected to include as a minimum, the nodalization, defense of the chosen parameters, any needed sensitivity studies, justification of the conservative nature of the input parameters and calculated results.
Compliance For each non-LOCA transient event analysis supporting the St. Lucie Unit 1 EPU, the nodalization, chosen parameters, conservative input and sensitivity studies were reviewed for applicability to the EPU in compliance with the SER for non-LOCA topical report. Specifically: • The nodalization used for the calculations supporting the EPU was specific to St. Lucie 1 and was consistent with the approved methodology. • The parameters and equipment states were chosen to provide a conservative estimate of the challenge to the acceptance criteria. The biasing and assumptions for key input parameters were consistent with the approved methodology. • The S-RELAP5 code assessments in the approved methodology validated the ability of the code to predict the response of the primary and secondary systems to non-LOCA transient and accidents. No additional model sensitivity studies were needed for this application. • Calculation results are provided in identified LR sections. In addition, this restriction was specifically addressed for St. Lucie Unit 1 as part of the RAI response for Amendment 191 which added the S-RELAP5 methodology to the Technical Specifications.

Table A.2-1 (Continued)
S-RELAP5 Non-LOCA Safety Analyses

Limitations, Restrictions, and Conditions
3. Specific plant applications may still require additional supporting assessment calculations should plant specific features or conditions be outside the range of the generic assessments.
Compliance The approved topical report is applicable to the CE 2x4 plant design which includes St. Lucie Unit 1. In addition, the approved topical report is listed in the Technical Specification/COLR list of approved methodologies for operation of St. Lucie Unit 1 at its current pre-uprate power level. St. Lucie Unit 1 does not have any unique features that would necessitate additional assessments nor are the conditions outside of the range of the generic assessments.
4. Specific event application of S-RELAP is given in Table 1 [of the SER].
Compliance The events analyzed with this methodology for the St. Lucie Unit 1 EPU encompassed the events cited in Table 1 of the SER as applicable to the St. Lucie Unit 1 licensing basis.
5. The XCOBRA-IIIC code (Reference A.2-2), will continue to be used to obtain the final predicted Minimum Departure from Nucleate Boiling Ration (MDNBR) for each non-LOCA transient event. The core condition calculated for the reactor coolant system (RCS) by S-RELAP5 will be used as input to the XCOBRA-IIIC core and subchannel methodology to predict the event-specific MDNBR.
Compliance The XCOBRA-IIIC code was used with core conditions calculated for the RCS by S-RELAP5 in the XCOBRA-IIIC core and subchannel methodology to predict the event-specific MDNBR.

References

A.2-1 EMF-2310(P)(A), Revision 1, SRP Chapter 15 Non-LOCA Methodology for Pressurized Water Reactors, Framatome ANP, May 2004.

A.2-2 XN-NF-75-21(P)(A), Revision 2, XCOBRA-IIIC: A Computer Code to Determine the Distribution of Coolant During Steady-State and Transient Core Operation, Exxon Nuclear Company, January 1986.

A.3 S-RELAP5 SMALL BREAK LOCA

The NRC SER can be found in the front of EMF-2328(P)(A) (Reference A.3-1). This SER concludes that the S-RELAP5 code is capable of performing an integrated calculation of a small break LOCA in a pressurized-water reactor (PWR) of the Combustion Engineering (CE) design. Following is a listing of conditions for use of the method made in the SER and AREVA NP's response.

Table A.3-1
S-RELAP5 Small Break LOCA

Limitations, Restrictions, and Conditions
1. ***If the code is used for break sizes larger than 10 percent of the cold leg flow area additional assessments must be performed to ensure that the code is predicting the important phenomena which may occur.***
Compliance The maximum break size considered by this methodology for the St. Lucie Unit 1 EPU was less than 10 percent of the cold leg flow area.

References

A.3-1 EMF-2328(P)(A), Revision 0, PWR Small Break LOCA Evaluation Model, S-RELAP5 Based, Framatome ANP, March 2001.

A.4 BORON FOR POST LOCA BORIC ACID PRECIPITATION

The NRC SER can be found in the front of CENPD-254-P-A (Reference A.4-1). This SER stipulates that there are no conditions and limitations on the use of the BORON code for licensing basis calculations. However, in a letter dated August 1, 2005 (Reference A.4-2), the NRC identified concerns regarding the CENPD-254-P-A post LOCA long-term cooling evaluation model. The letter states the following:

> *"Until the NRC staff's concerns are sufficiently resolved, the staff will not approve the use of TR CENPD-254-P for license applications."*

Based on discussions with the NRC staff, the issues identified in Reference A.4-2 must be addressed to the staff's satisfaction for any plant change that impacts the post-LOCA long term cooling analysis and that requires NRC approval before implementation. This understanding was confirmed by the NRC in a letter dated November 23, 2005 (Reference A.4-3), wherein the following is stated:

> *"Until a supplement to TR CENPD-254-P is issued addressing the staff concerns, the following four items will also need to be addressed by licensees on a plant-specific basis in any future submittals regarding post-LOCA LTC."*

The four items identified in Reference A.4-3 are listed in Table A.4-1 along with Westinghouse statements of compliance.

Table A.4-1
BORON for Post LOCA Boric Acid Precipitation

Limitations, Restrictions, and Conditions
1. The mixing volume must be justified; its calculation must account for void fraction.
Compliance The mixing volume for the St. Lucie Unit 1 boric acid precipitation analysis was justified and accounted for void fraction. The mixing volume is the region in the reactor inner vessel wherein boric acid accumulates as a result of borated water injected by the ECCS equipment replacing the unborated water that leaves the mixing volume in the form of steam produced by boiling in the core. For St. Lucie Unit 1 EPU, changes to the mixing volume from the Reference A.4-1 methodology were made consistent with previously NRC accepted methods and were justified by experimental evidence that was conservatively applied. The liquid volume in the mixing volume was calculated by applying the CEFLASH-4AS phase separation model to this region, thereby incorporating void fraction dependence into the boric acid concentration calculation. The phase separation model used in CEFLASH-4AS was previously approved by the staff for computing the mixture level in the core following small break LOCAs. This model was shown to accurately predict the void fraction and the two-phase mixture level in regions experiencing high rates of heat addition following small break LOCAs.

Table A.4-1 (Continued)
BORON for Post LOCA Boric Acid Precipitation

Limitations, Restrictions, and Conditions
2. The calculation of the mixing volume must account for the loop pressure drop between the core and the break.
Compliance The calculated mixing volume for the St. Lucie Unit 1 boric acid precipitation analysis did account for the loop pressure drop between the core and the break. The loop pressure drop was conservatively calculated at several time points including early times with the higher steam flow rate and later times with higher boric acid concentration. Frictional losses in the loop pressure drop calculation were increased by roughly 60% for conservatism and the geometric losses were conservatively modeled with a reactor coolant pump locked rotor hydraulic loss coefficient. The upper elevation of the mixing volume was justified by hydrostatic pressure balances that included the conservatively calculated loop pressure drop between the core and the break.
3. The boric acid solubility limit must be justified, especially if crediting containment pressures greater than 14.7 psia or chemical additives in the sump water.
Compliance The solubility limit for the St. Lucie Unit 1 boric acid precipitation analysis was determined from the NRC accepted model in Reference A.4-1 for a containment pressure of 14.7 psia; therefore, no credit is taken for containment pressures greater than 14.7 psia. Also no credit is taken in the solubility limit from any impact due to chemical additives in the sump water.
4. A decay heat multiplier of 1.2 must be used for all times if an Appendix K evaluation model is used.
Compliance Decay heat for the St. Lucie Unit 1 boric acid precipitation analysis is represented with the 1973 ANS Standard with a 1.2 multiplier used for all times, which is a conservative treatment of decay heat following shutdown of the reactor.

References

A.4-1 CENPD-254-P-A, Post-LOCA Long Term Cooling Evaluation Model, June 1980.

A.4-2 NRC letter, Suspension of NRC Approval for use of Westinghouse Topical Report CENPD-254-P, ‘Post-LOCA Long-Term Cooling Model,’ Due to Discovery of Non-Conservative Modeling Assumptions During Calculations Audit, R. A. Gramm, August 1, 2005. (ADAMS No. ML051920310)

A.4-3 NRC letter, Clarification of NRC Letter Dated August 1, 2005, Suspension of NRC Approval for use of Westinghouse Topical Report CENPD-254-P, ‘Post-LOCA Long-Term Cooling Model,’ Due to Discovery of Non-Conservative Modeling Assumptions during Calculations Audit (TAC MB1365), D. S. Collins, November 23, 2005. (ADAMS No. ML053220569)

A.5 CEFLASH-4B FOR LOCA HYDRAULIC BLOWDOWN LOADS

The blowdown loads assessment for St. Lucie Unit 1 was performed using the standard methodology documented in CENPD-252-P-A using the CEFLASH-4B computer code. CENPD-252-P-A (Reference A.5-1) is the topical report for the LOCA hydraulic blowdown loads methodology using the CEFLASH-4B code. Reference A.5-2 is the SER for Reference A.5-1, and may be found in the front of Reference A.5-1. This SER states a number of conditions and limitations on the use of the CEFLASH-4B evaluation model for licensing basis calculations. The following is a review of these SER restrictions and requirements.

Table A.5-1
CEFLASH-4B for LOCA Hydraulic Blowdown Loads

Limitations, Restrictions and Conditions
1. The CE critical flow model is to be used.
Compliance Standard methodology in Blowdown Loads analyses uses the CE critical flow model that is described in Section 2.1.3 of the Topical Report. Therefore, Westinghouse is in compliance with this restriction.
2. The break opening schedules, including location, size and time based on the mechanistic break model employed by Combustion Engineering are to be referenced for licensing calculations.
Compliance Standard methodology in Blowdown Loads analyses addresses mechanistically determined pipe breaks. The mechanistic approach is based on non-linear structural analysis techniques and the conservative assumption of instantaneous crack propagation to determine realistic break opening times. Therefore, Westinghouse is in compliance with this restriction.
3. The Combustion Engineering design model for the annulus representation is to be used for licensing calculations.
Compliance Standard methodology in Blowdown Loads analyses uses the nodalization for annulus representation that is described in the Topical Report. Therefore, Westinghouse is in compliance with this restriction.
4. The evaluation of the blowdown induced forces following a postulated LOCA is acceptable provided a CEFLASH-4A licensing calculation is performed to obtain the hydraulic input data.
Compliance In the SER wording, “CEFLASH-4A” should read “CEFLASH-4B (see page 2 of SER).” Standard methodology in Blowdown Loads analyses uses the CEFLASH-4B code. Therefore, Westinghouse is in compliance with this restriction.

References

A.5-1 CENPD-252-P-A, Blowdown Analysis Method - Method for the Analysis of Blowdown Induced Forces in a Reactor Vessel, July 1979.

A.5-2 R.L. Baer (NRC) to A. E. Scherer (CE), Staff Evaluation of Topical Report CENPD-252-P, February 12, 1979.

A.6 REALISTIC LARGE BREAK LOCA

The following discussion of the applicability limits and restrictions imposed on the AREVA Realistic Large Break LOCA (RLBLOCA) methodology. Only those limits and restrictions which have been determined as applicable to be RLBLOCA methodology (discussed in EMF-2103(P)(A), Reference A.6-1) are addressed below.

Table A.6-1
Realistic Large Break LOCA
Conditions for Use of S-RELAP5

Limitations, Restrictions, and Conditions
1. CCFL violation: A CCFL violation warning will be added to alert the analyst to CCFL violation in the downcomer should such occur.
Compliance Based on the use of CCFL violating warning, there was no significant occurrence of CCFL violation in the downcomer for St. Lucie Unit 1 analysis. Violations of CCFL were noted in a statistically insignificant number of time steps.
2. AREVA NP has agreed that it is not to use nodalization with hot leg to downcomer nozzle gaps.
Compliance Hot Let nozzle gaps were not modeled

Table A.6-1 (Continued)
Realistic Large Break LOCA
Conditions for Use of S-RELAP5

Limitations, Restrictions, and Conditions
3. If AREVA NP applies the RLBLOCA methodology to plants using a higher planar linear heat generation rate (PLHGR) than used in the current analysis, or if the methodology is to be applied to an end-of-life analysis for which the pin pressure is significantly higher, then the need for a blowdown clad rupture model will be reevaluated. The evaluation may be based on relevant engineering experience and should be documented in either the RLBLOCA guideline or plant specific calculation file.
Compliance The PLHGR for St. Lucie Unit 1 is lower than that used in the development of the RLBLOCA EM (Reference A.6-1). An end-of-life calculation was not performed; thus, the need for a blowdown cladding rupture model was not reevaluated.
4. Slot breaks on the top of the pipe have not been evaluated. These breaks could cause the loop seals to refill during late reflood and the core to uncover again. These break locations are an oxidation concern as opposed to a PCT concern since the top of the core can remain uncovered for extended periods of time. Should an analysis be performed for a plant with spillunder (Top crossover pipe (ID) at the crossover pipes lowest elevation) that are below the top elevation of the core, AREVA NP will evaluate the effect of the deep loop seal on the slot breaks. The evaluation may be based on relevant engineering experience and should be documented in either the RLBLOCA guideline or plant-specific calculation file.
Compliance For St. Lucie Unit 1, the elevation of the cross-over piping top (ID) relative to the cold leg center line is approximately -57 inches, and the elevation of the top of the active core relative to the cold leg center line is approximately -66 inches. Therefore, no evaluation is required.

Table A.6-2
Realistic Large Break LOCA
Applicability

Limitations, Restrictions, and Conditions
5. The model applies to 3 and 4 loop Westinghouse- and CE-designed nuclear steam systems.
Compliance St. Lucie Unit 1 is a CE-designed 2X4 loop plant.
6. The model applies to bottom reflood plants only (cold side injection into the cold legs at the reactor coolant discharge piping).
Compliance St. Lucie Unit 1 is a bottom reflood plant.

Table A.6-2 (Continued)
Realistic Large Break LOCA
Applicability

Limitations, Restrictions, and Conditions
7. The model is valid as long as blowdown quench does not occur. If blowdown quench occurs, additional justification for the blowdown heat transfer model and uncertainty are needed or the calculation is corrected. A blowdown quench is characterized by a temperature reduction of the peak cladding temperature (PCT) node to saturation temperature during the blowdown period.
Compliance The limiting case in St. Lucie Unit 1 RLBLOCA did not show any evidence of a blowdown quench.
8. The reflood model applies to bottom-up quench behavior. If a top-down quench occurs, the model is to be justified or corrected to remove top quench. A top-down quench is characterized by the quench front moving from the top to the bottom of the hot assembly.
Compliance Core quench initiated at the bottom of the core and proceeded upward.
9. The model does not determine whether Criterion 5 of 10 CFR 50.46, long term cooling, has been satisfied. This will be determined by each applicant or licensee as part of its application of this methodology.
Compliance Long-term cooling was not evaluated in the RLBLOCA analysis.
10. The licensee or applicant wishing to apply AREVA NP realistic large break loss-of-coolant accident (RLBLOCA) methodology to M5 clad fuel must request an exemption for its use until the planned rulemaking to modify 10 CFR 50.46(a)(i) to include M5 cladding material has been completed.
Compliance Not applicable.

Table A.6-3
Realistic Large Break LOCA
Justification for Specific Application

Limitations, Restrictions, and Conditions
11. Specific guidelines must be used to develop the plant-specific nodalization. Deviations from the reference plant must be addressed.
Compliance The St. Lucie Unit 1 nodalization in the plant model is consistent with the CE-designed 2X4 loop sample calculation that was submitted to the NRC for review.
12. A table that contains the plant-specific parameters and the range of the values considered for the selected parameter during the topical report approval process must be provided. When plant-specific parameters are outside the range used in demonstrating acceptable code performance, the licensee or applicant will submit sensitivity studies to show the effects of that deviation.
Compliance The correlations of interest are the set of heat transfer correlations as described in Reference A.6-2. Table 3-7 presents the summary of the full range of applicability for the important heat transfer correlations, as well as the ranges calculated in the limiting case of this analysis. Calculated values for other parameters of interest are also provided. As is evident in proprietary version of Reference A.6-2, Table 3-7, the plant-specific parameters fall within the methodology's range of applicability. Reference A.6-2 is included as Appendix C to Attachment 5 of the EPU LAR.
13. The licensee or applicant using the approved methodology must submit the results of the plant-specific analyses, including the calculated worst break size, PCT, and local and total oxidation.
Compliance Analysis results are discussed in Reference A.6-2, Section 3.5

References

A.6-1 EMF-2103(P)(A), Revision 0, Realistic Large Break LOCA Methodology for Pressurized Water Reactors, April 2003.

A.6-2 ANP-2903(NP), Revision 000, St. Lucie Nuclear Plant Unit 1 EPU Cycle Realistic Large Break LOCA Summary Report with Zr-4 Fuel Cladding, February 2010.

A.7 XCOBRA-IIIC FOR NON-LOCA THERMAL-HYDRAULICS

Table A.7-4
XCOBRA-IIIC for Non-LOCA Thermal-Hydraulics

Limitations, Restrictions and Conditions
1. Our conclusions are limited to the use of XCOBRA-IIIC in the "snapshot" mode when used for transients and excludes LOCA/ECCS and other calculations with flow reversal and recirculation. (Reference A.7-1)
Compliance XCOBRA-IIIC is not used to model any flow reversal or recirculation. XCOBRA-IIIC is used only to model DNB at steady state.
2. In addition, an adjustment of 2% on the minimum DNBR must be included for mixed cores containing hydraulically different fuel assemblies. (Reference A.7-2)
Compliance A 2% mixed core penalty was conservatively included in the DNB analysis limit even though the EPU core design used in the analyses was not a mixed core.
3. This methodology is approved only for CE type reactors which use protection systems as described in the topical report. (Reference A.7-3)
Compliance St. Lucie Unit 1 is a CE type reactor which uses protection systems as described in the Reference A.7-3 topical report.
4. The methodology includes a statistical treatment of specific variables in the analysis; therefore if additional variables are treated statistically SPC (Siemens Power Corporation, now AREVA NP) should re-evaluate the methodology and document the changes in the treatment of the variables. The documentation will be maintained by AREVA NP and will be available for NRC audit. (Reference A.7-3)
Compliance For statistical DNB calculations, uncertainties were statistically treated according to the approved methodology in the Reference A.7-3 topical report.

References

A.7-1 XN-NF-75-21(P)(A), Revision 2, XCOBRA-IIIC: A Computer Code to Determine the Distribution of Coolant During Steady-State and Transient Core Operation, Exxon Nuclear Company, January 1986.

A.7-2 XN-NF-82-21(P)(A), Revision 1, Application of Exxon Nuclear Company PWR Thermal Margin Methodology to Mixed Core Configurations, Exxon Nuclear Company, September 1983.

A.7-3 EMF-1961(P)(A), Revision 0, Statistical Setpoint/Transient Methodology for Combustion Engineering Type Reactors, Siemens Power Corporation, July 2000.