

**St. Lucie Unit 2
Extended Power Uprate
Licensing Report**

**Attachment 5
Appendix B**

Additional Codes and Methods

This cover sheet plus 2 pages

APPENDIX B ADDITIONAL CODES AND METHODS

In addition to the codes and methods listed in Appendix A of this LR, numerous analytical codes and methods were used to support the Extended Power Uprate (EPU). These have been reviewed against the codes and methods currently described in the UFSAR. The information presented below represents the set of key codes used that do not currently reside in the UFSAR as well as their associated application. All of these codes/methods have been determined by Florida Power & Light to be appropriate for use in their respective applications.

**Table B-1
Additional Codes and Methods**

CODE	APPLICATION
ANETH	The ANETH computer code is a one-dimensional code which was used for water level instability analysis.
BULKTEM	This code was used to calculate the decay heat produced in the spent fuel pool by the recently off-loaded fuel.
CHECWORKS-SFA	This code was used to determine Flow Accelerated Corrosion (FAC) predictions.
CENTS	This code was used to perform Nuclear Steam Supply System (NSSS) modeling.
CAFTA	The Computer Assisted Fault Tree Analysis (CAFTA) code was used in the modeling, development and maintenance of fault tree models.
FLUENT	General Purpose Computational Fluid Dynamics (CFD) Program.
HRA	HRA Calculator is a software tool which was used to facilitate a standardized approach to human reliability analysis (HRA).
LONGOR	This code was used to quantify the decay heat produced by previously off-loaded fuel.
LASER	This code was used to estimate flux depression in fuel.
MAAP	The Modular Accident Analyses Program (MAAP) simulates plant response to severe accidents given a set of initiating events and operator actions. This code was used to support development of the St. Lucie Probabilistic Risk Analysis (PRA).
MCNP5	This code was used to perform criticality analysis.
NSSSPlus	This code was used to generate Performance Capability Working Group (PCWG) design sheets.
ORIGEN 2.1	This code was used to support the determination of core inventory nuclides for dose calculations.
ORIGEN2	This code was used to support the determination of core inventory nuclides for decay heat calculations.
PITRUST-PC	PITRUST-PC is a computer program which was used to calculate local stress intensity at the junction of two cylindrical vessels.

Table B-1
Additional Codes and Methods

CODE	APPLICATION
PILUG-PC	PILUG-PC is a computer program which was used in support of the analysis of local stresses at the connection of rectangular lugs to piping.
PITRIFE	PITRIFE is a computer program which was used to perform analysis of local stresses at the connection of round trunnions to piping.
PERFGV	This program was used to provide performance and thermal-hydraulic parameters of U-tube type steam generators for BOL and EOL conditions at various power levels.
PLAQUE TUBULAIRE	This program was used to determine stresses taking into account the stress concentration factors associated with the tubesheet hole pattern.
PLSCADD	This program was used to perform sag-tension analysis of overhead power lines.
PSS/E	This computer program was used to perform power flow analysis of the post transient condition for outage events.
RCCM-ASME	This code was used to calculate the linearized stress intensity range and fatigue usage factor in accordance with ASME Section III, Subsection NB.
SYSNUKE	This code was used to determine the stress field including temperature variation and stress distribution.
STEHAM-PC	This code was used to determine forcing functions for a main steam isolation valve (MSIV) closure event and a turbine stop valve (TSV) closure fluid transient event.
WATHAM-PC	This code was used to determine forcing functions for the feedwater regulating valve, isolation valve closure and feedwater pump trip events.