

NS-NRC-85-3025

SSE ON BART-A1 COMPUTER
CODE INPUT METHODOLOGY MODIFICATION

Reference 1 is the acceptance copy of the topical report describing BART-A1. The NRC staff SER is included in that document. BART-A1 is used to calculate reflood heat transfer during a large break LOCA. This code, developed by Westinghouse replaces the FLECHT correlation. It is based on more mechanistic principles and is less empirical than FLECHT. In general, the staff supports approaches such as used in BART-A1.

The purpose of this SSER is to address the change in input methodology for the BART computer code as reported to the Turkey Point Board on March 18, 1985. In consideration of that issue some changes are made in the Turkey Point SER (reference 2).

In reference 3, the NRC staff was informed by Westinghouse Electric Corporation of an input methodology problem for the BART computer program. BART is one of the programs in the Westinghouse Emergency Core Cooling System (ECCS) evaluation model used to demonstrate compliance with 10 CFR 50.46 and Appendix K to 10 CFR 50.

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Core inlet flooding rate (V_{in}) calculated as a function of time in the WREFLOOD computer code is used as input to the BART code. However, only a limited number of V_{in} points are made available from WREFLOOD. During the first few seconds of the core reflooding transient, the change in V_{in} as a function of

time is oscillatory. Therefore, using a limited number of points from WREFLOOD did not allow an accurate representation of V_{in} or the integral of V_{in} used in BART. In partical the intègral of V_{in} and consequently the water level in the core was too high as used in BART.

Westinghouse modified the data transfer procedure so that good agreement now exists between WREFLOOD and BART. The analysis procedure also instructs the analyst to assure that for all times during reflood the integrated value of V_{in} used in BART is equal to or less than that calculated by WREFLOOD. A reanalysis of the Turkey Point Units 3 and 4 was performed using the new methodology.

We have reviewed the information submitted by Westinghouse and find the new methodology satisfactory and meets the requirements of Appendix K to 10 CFR 50. An SER addressing this subject on a plant specific basis for Turkey Point Units 3 and 4 and other plant specific SERs will be supplied for those plants that have referenced BART prior to this evaluation approving the modified data transfer procedure on a generic basis.

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REFERENCES

1. BART-A1: A Computer Code for the Best Estimate Analysis of Reflood Transients, WCAP-9561-P-A, March 1984.
2. Letter to Robert E. Uhing (FP&L) from Dan McDonald (NRC) on "Technical Specification Amendments to Support the Integrated Program for Vessel Flux Reduction and Operation with New Steam Generators," (Enclosure 3) dated December 23, 1983.
3. Letter from E. P. Rahe, (Westinghouse) to D. G. Eisenhut (NRC) on "BART-WREFLOOD Input Revision," dated March 22, 1985.