

May 14, 1991

Docket Nos. 50-266
and 50-301

DISTRIBUTION
NRC & Local PDRs
JZwolinski
PDIII-3 Reading
RSamworth
EJordan
Region III, DRP

Docket File
BBoger
PKreutzer
PDIII-3 Gray
OGC
ACRS(10)

Mr. C. W. Fay, Vice President
Nuclear Power Department
Wisconsin Electric Power Company
231 W. Michigan Street, Room 308
Milwaukee, Wisconsin 53201

Dear Mr. Fay:

SUBJECT: APPROVAL OF CORRECTED ECCS LOCA ANALYSIS (TAC NOS. 79973 AND 79974)

By letter dated July 24, 1990 (NRC-90-075), you provided information about an error in the decay heat model used to perform large-break loss of coolant accident (LBLOCA) analyses for the Point Beach Nuclear Plant. By letter dated October 31, 1990 (NRC-90-108), you documented steps taken and activities in progress to correct and improve the model. You also described compensatory measures adopted pending completion and NRC staff review of the revised model. On September 5, 1990, Westinghouse Electric Corporation submitted a new topical report describing the revised model (Addendum 4 to Westinghouse Topical Report WCAP-10924, Volume 1, "Westinghouse Large Break LOCA Best Estimate Methodology: Model Description and Validation"). NRC approved the Westinghouse topical report by letter dated February 8, 1991 (A. Thadani to W. J. Johnson). By letter dated March 5, 1991 (NRC-91-024), you advised that the LBLOCA analyses for Point Beach had been redone using the revised model. By letter dated April 12, 1991 (NRC-91-035), you provided supplemental information about the LBLOCA analysis in response to a telephone conversation regarding your March 5, 1991 submittal.

We have completed our review of your submittals and find your use of the approved Westinghouse model acceptable. We, therefore, have no objection to your utilization of the maximum allowed height dependent heat flux hot channel factor, FQ(Z) value of 2.50. Since this is the value currently in Technical Specification 15.3.10.B, "Power Distribution Limits," there is no need for licensing action and we consider this matter closed.

I have enclosed a copy of the safety evaluation summarizing our review.

Sincerely,

original signed by

Robert B. Samworth, Sr. Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Enclosure: As stated

cc w/enclosure: See next page

LA/PDIII-3 PM/PDIII-3 PE/PDIII-3
PKreutzer RSamworth:rc JHannon
5/14/91 5/14/91 5/14/91

DOCUMENT NAME: ECCS LOCA LTR

9105290192 910514
PDR ADOCK 05000266
P PDR

NRC FILE CENTER COPY

DF01
111

21-14

May 14, 1991

Docket Nos. 50-266
and 50-301

DISTRIBUTION
NRC & Local PDRs
JZwolinski
PDIII-3 Reading
RSanworth
EJordan
Region III, DRP

Docket File
BBoger
PKreutzer
PDIII-3 Gray
OGC
ACRS(10)

Mr. C. W. Fay, Vice President
Nuclear Power Department
Wisconsin Electric Power Company
231 W. Michigan Street, Room 308
Milwaukee, Wisconsin 53201

Dear Mr. Fay:

SUBJECT: APPROVAL OF CORRECTED ECCS LOCA ANALYSIS (TAC NOS. 79973 AND 79974)

By letter dated July 24, 1990 (NRC-90-075), you provided information about an error in the decay heat model used to perform large-break loss of coolant accident (LBLOCA) analyses for the Point Beach Nuclear Plant. By letter dated October 31, 1990 (NRC-90-108), you documented steps taken and activities in progress to correct and improve the model. You also described compensatory measures accepted pending completion and NRC staff review of the revised model. On September 5, 1990, Westinghouse Electric Corporation submitted a new topical report describing the revised model (Addendum 4 to Westinghouse Topical Report WCAP-10924, Volume 1, "Westinghouse Large Break LOCA Best Estimate Methodology: Model Description and Validation"). NRC approved the Westinghouse topical report by letter dated February 8, 1991 (A. Thadani to W. J. Johnson). By letter dated March 5, 1991 (NRC-91-024), you advised that the LBLOCA analyses for Point Beach had been redone using the revised model. By letter dated April 12, 1991 (NRC-91-035), you provided supplemental information about the LBLOCA analysis in response to a telephone conversation regarding your March 5, 1991 submittal.

We have completed our review of your submittals and find your use of the approved Westinghouse model acceptable. We, therefore, have no objection to your utilization of the maximum allowed height dependent heat flux hot channel factor, FQ(Z) value of 2.50. Since this is the value currently in Technical Specification 15.3.10.B, "Power Distribution Limits," there is no need for licensing action and we consider this matter closed.

I have enclosed a copy of the safety evaluation summarizing our review.

Sincerely,

original signed by

Robert B. Sanworth, Sr. Project Manager
Project Directorate III-3
Division of Reactor Projects III/IV/V
Office of Nuclear Reactor Regulation

Enclosure: As stated

cc w/enclosure: See next page

LA/PDIII-3 PM/PDIII-3 PB/PDIII-3
PKreutzer RSanworth:rc JHannon
5/14/91 5/14/91 5/14/91
DOCUMENT NAME: ECCS LOCA LTR

Mr. C. W. Fay
Wisconsin Electric Power Company

Point Beach Nuclear Plant
Unit Nos. 1 and 2

cc:

Ernest L. Blake, Jr.
Shaw, Pittman, Potts & Trowbridge
2300 N Street, N.W.
Washington, DC 20037

Mr. Gregory J. Maxfield, Manager
Point Beach Nuclear Plant
Wisconsin Electric Power Company
6610 Nuclear Road
Two Rivers, Wisconsin 54241

Town Chairman
Town of Two Creeks
Route 3
Two Rivers, Wisconsin 54241

Chairman
Public Service Commission
of Wisconsin
Hills Farms State Office Building
Madison, Wisconsin 53702

Regional Administrator, Region III
U.S. Nuclear Regulatory Commission
Office of Executive Director
for Operations
799 Roosevelt Road
Glen Ellyn, Illinois 60137

Resident Inspector's Office
U.S. Nuclear Regulatory Commission
6612 Nuclear Road
Two Rivers, Wisconsin 54241



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

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION

RELATING TO POINT BEACH LOCA ANALYSES

WISCONSIN ELECTRIC POWER COMPANY

POINT BEACH UNITS 1 AND 2

DOCKET NOS. 50-266 AND 50-301

1.0 BACKGROUND

On March 5, 1991, Wisconsin Electric Power Company reported reanalysis of loss of coolant accident (LOCA) events for Point Beach Units 1 and 2 referencing WCAP-10924-P, Volume 1, Addendum 4, Revision 1 (August 1990). This topical report describes changes to the staff-approved methodology (WCAP-10924-P-A) which the Point Beach plants have been referencing for licensing basis LOCA analyses since February 1989. The revisions (August 1990) correct an error in the decay heat calculation and amend certain fuel and core calculational methods.

On April 12, 1991 the licensee submitted additional detailed information supporting the applicability of WCAP-10924-P, Volume 1, Addendum 4, Revision 1 (August 1990) to Point Beach and also provided results of the LOCA analyses performed with the revised methodology.

2.0 EVALUATION

The WCAP-10924-P-A methodology was approved on August 29, 1988, and its applicability to Point Beach was approved on February 6, 1989. In its evaluation of the generic topical report WCAP-10924-P, Volume 1, Addendum 4, Revision 1 (August 1990) which updates the 1988 version, the staff found its methodology acceptable for referencing by Westinghouse-designed two-loop upper plenum injection (UPI) plants. In the April 12, 1991 submittal, the licensee identified calculational changes in the application of the revised model from the previous model application (SE, February 6, 1989). Nine input changes were identified.

Two changes, dealing with neutron and gamma redistribution factors, are associated with the WCAP-10924-P, Volume 1, Addendum 4, Revision 1 (August 1990) methodology which was approved in the staff evaluation of February 8, 1991.

Two other changes, pressure drop calculations and adjusted loop elevations, were identified to be consistent with the WCAP-10924 methodology and within input value variance acceptance tolerances. These are similar to corresponding changes approved for Prairie Island in the staff evaluation of February 8, 1991.

Another change reflects use of the Westinghouse fuel performance code PAD 3.4, approved in a staff evaluation of May 9, 1988. A condition of the staff acceptance of PAD 3.4 is that it be applied only to fuels with gap sizes of 10 mils or less. This condition is satisfied by the Point Beach OFA fuel.

Two changes are specific to the Point Beach configuration and analyses, high head safety injection into cold leg accumulator discharge lines rather than directly (this differs from the Prairie Island configuration) and peak rod power (14.54 kw/ft). These conditions are within the scope of the approved evaluation model and are, therefore, acceptable.

The April 12, 1991 submittal also provides the results of LOCA analyses performed with the updated methodology. The licensee did not identify any significant changes in assumptions or inputs to the analyses (other than those identified above) from those in the previous licensing basis LOCA analyses (approved in SE dated February 6, 1989). These previous analyses identified the appropriate set of input conditions and a worst break, double-ended cold leg guillotine (DECLG) break with a break discharge coefficient (Cd) of 0.4. Using the updated methodology for an assumed DECLG Cd = 0.4 break the calculated peak cladding temperature is 2028°F, the calculated maximum local metal/water reaction is 4.85 percent, and the calculated total core-wide metal/water reaction is less than 0.3 percent which are below the allowable limits specified in 10 CFR 50.46(b) of 2200°F, 17 percent, and 1 percent, respectively. The analyses were performed based on a total peaking factor of 2.5 at 102 percent of the rated NSSS power level of 1518.5 megawatts thermal, with up to 25 percent (symmetric) steam generator tube plugging.

3.0 CONCLUSIONS

As discussed above, we find that the LOCA analysis methodology described in WCAP-10924-P, Volume 1, Addendum 4, Revision 1 (August 1990) has been acceptably referenced for analysis of Point Beach Units 1 and 2, and that the LOCA analyses submitted April 12, 1991 using the August 1990 updated methodology are acceptable.

Principal Contributor: F. Orr, SRXB

Date: May 14, 1991