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SUBJECT: Forwards annual rept of ECCS model revs as applicable to facility,per 10CFR50.46.Info provides effects of ECCS evaluation model mods on large & small break LOCA analysis.

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March 22, 1991

U.S. Nuclear Regulatory Commission
Document Control Desk
Attn: Allen R. Johnson
Project Directorate I-3
Washington, D.C. 20555

Subject: 10CFR50.46 Annual Report
ECCS Evaluation Model Revisions
R.E. Ginna Nuclear Power Plant
Docket No. 50-244

Reference: RG&E letter from R. C. Mecredy to A. R. Johnson (NRC), "10CFR50.46 Annual Report," dated March 28, 1990.

Dear Mr. Johnson:

This letter provides the annual report of Emergency Core Cooling System (ECCS) model revisions as they apply to R. E. Ginna.

The attachment to this letter provides information regarding the effects of the ECCS evaluation model modifications on the Ginna large and small break LOCA analysis. For completeness, the effects of 10CFR50.59 evaluations has also been included. Since the submittal of Reference 1, large break LOCA peak clad temperature (PCT) has increased by 1° to 1890° and small break LOCA PCT has increased by 55° to 1147°.

Very truly yours,

Robert C. Mecredy

Robert C. Mecredy

RWE/147
Attachment

xc: Mr. Allen R. Johnson (Mail Stop 14D1)
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Washington, D.C. 20555

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Ginna Senior Resident Inspector

A001
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ATTACHMENT TO 10CFR50.46 ANNUAL REPORT

Reference 1 presented the changes in PCT for both large and small break LOCA analysis through 1989. The following summarized the changes in PCT for 1990. PCT changes are presented for evaluation model modifications, 10CFR50.59 evaluations, and margin temporarily allocated by Westinghouse for potential issues related to the ECCS Evaluation Model. When the potential issues are resolved the temporarily allocated margin will either become permanent or dismissed depending upon the resolution.

LARGE BREAK LOCA - EVALUATION MODEL MODIFICATIONS

None.

LARGE BREAK LOCA - 10CFR50.59 SAFETY EVALUATION

- Reference 2 approved an amendment to the Ginna Operating License that allowed uses of reconstituted fuel assemblies. The effect of reconstituted fuel assemblies on the LOCA analysis was estimated in Reference 3 to be approximately 0.5°. . Therefore, a conservative PCT penalty of + 1.0° has been assigned for use of reconstituted fuel.

LARGE BREAK LOCA - POTENTIAL ISSUES

Several potential issues are being evaluated by Westinghouse. The issues that apply to Ginna are: fuel rod initial condition inconsistency, LOCA power distribution assumption, and steam generator seismic/LOCA assumption. The total temporary PCT margin assigned to these issues for Ginna is 160°.

Table 1 summarizes the large break LOCA PCT margin assessment.

SMALL BREAK LOCA - EVALUATION MODEL MODIFICATIONS

None.

SMALL BREAK LOCA - 10CFR50.59 SAFETY EVALUATION

- A safety evaluation of the effect of purging the steam generator auxiliary feedwater piping of the residual main feedwater during a small break LOCA was performed internal to Westinghouse. As reported in Reference 4, this evaluation determined that the small break LOCA analysis PCT results for Ginna could increase up to 11°.

- A safety evaluation was performed based on Reference 5 to increase the feedwater isolation time from 5 sec. to 10 sec. The effect of the increase in isolation time on small break LOCA was evaluated. The evaluation accounted for the PCT penalty associated with the additional secondary side energy as a result of the delayed valve closure and the benefit of the additional subcooled feedwater liquid due to the delayed closure. The net result using an energy balance calculation was a PCT penalty of 43°.

- Reference 2 approved an amendment to the Ginna Operating License that allowed uses of reconstituted fuel assemblies. The effect of reconstituted fuel assemblies on the LOCA analysis was estimated in Reference 3 to be approximately 0.5°. Therefore, a conservative PCT penalty of + 1.0° has been assigned for use of reconstituted fuel.

SMALL BREAK LOCA - POTENTIAL ISSUES

Several potential issues are being evaluated by Westinghouse. The issues that apply to Ginna are: fuel rod initial condition inconsistency and rod internal pressure assumption. The total temporary PCT margin assigned to these issues for Ginna is 65°.

Table 2 summarizes the small break LOCA PCT margin assignment.

CONCLUSIONS

The large break and small break LOCA total PCTs exhibit continued margin to the 10CFR50.46 PCT limit of 2200°.

REFERENCES

1. RG&E letter from R. C. Mecredy to A. R. Johnson (NRC), "10CFR50.46 Annual Report," dated March 28, 1990.

2. NRC letter from A. R. Johnson to R. C. Mecredy (RG&E), "Issuance of Amendment No. 39 to Facility Operating License No. DPR-18-R. E. Ginna Nuclear Power Plant," dated April 12, 1990.

3. Safety Analysis, "Cycle 20 Core Loading Pattern," EWR 5021, Rev. 1, dated April 27, 1990.

4. Westinghouse letter RG&E-89-693 from S. P. Swigart to G. J. Wrobel (RG&E) "Report of ECCS Evaluation Model Revisions," dated December 20, 1989.

5. Westinghouse letter RGE-90-520 from S. P. Swigart to R. W. Eliasz (RG&E), "Evaluation to Support Increased Feedwater Isolation Delay Time," dated February 5, 1990.

TABLE 1
10CFR50.46 PCT MARGIN ASSESSMENT
LARGE BREAK LOCA

ANALYSIS OF RECORD — PCT = 1887°

a. Prior LOCA Model Assessments — ▲ PCT = + 2°
(Permanent Assessment of PCT Margin)
(Ref. 1)

b. 10CFR50.59 SAFETY EVALUATIONS — ▲ PCT = + 1°
(Permanent Assessment of PCT Margin)

LICENSING BASIS PCT = 1890°

POTENTIAL ISSUES
(Temporary Use of PCT Margin)

- Fuel rod initial condition inconsistency
- LOCA power distribution assumption
- SG tube seismic/LOCA assumption

Total ▲ PCT = + 160°

LICENSING BASIS PCT + TEMPORARY ALLOCATED PCT = 2050°

TABLE 2
10CFR50.46 PCT MARGIN ASSESSMENT
SMALL BREAK LOCA

ANALYSIS OF RECORD	PCT = 1092°
a. Prior LOCA Model Assessments (Permanent Assessment of PCT Margin) (Ref. 1)	▲ PCT = 0
b. 10CFR50.59 SAFETY EVALUATIONS (Permanent Assessment of PCT Margin)	▲ PCT = + 55°
	LICENSING BASIS PCT = 1147°

POTENTIAL ISSUES
(Temporary Use of PCT Margin)

- Fuel rod initial condition inconsistency
- Rod internal pressure assumption

Total ▲ PCT = + 65°

LICENSING BASIS PCT + TEMPORARY ALLOCATED PCT = 1212°