Section 8

DRAFT SUPPORTING STATEMENT FOR ACCEPTANCE CRITERIA FOR EMERGENCY CORE COOLING SYSTEMS (ECCS)

10 CFR 50.46 AND APPENDIX K

DESCRIPTION OF THE INFORMATION COLLECTION

Section 50.46 provides an alternate method of meeting the Appendix K requirements for Emergency Core Cooling Systems (ECCS). It permits licensees or applicants to analyze ECCS performance using realistic calculations. This method of calculation may remove some operating restrictions and, thus, motivate licensees to submit realistic analyses for review. This aspect of the rule represents a voluntary information collection burden to the industry. Realistic analyses are not required of licensees not electing this option.

Sections 50.46(a)(3)(i) and (ii), respectively, require:

(i) Each applicant for or holder of an operating license or construction permit, other than a holder of a license for a reactor facility for which the certifications required under 50.82(a)(1) have been submitted, shall estimate the effect of any change to or error in an acceptable evaluation model or in the application of such a model to determine if the change or error is significant. For this purpose, a significant change or error is one which results in a calculated peak fuel cladding temperature different by more than 50^0F from the temperature calculated for the limiting transient using the last acceptable model, or is a cumulation of changes and errors such that the sum of the absolute magnitudes of the respective temperature changes is greater than 50^0F.

(ii) For each change to or error discovered in an acceptable evaluation model or in the application of such a model that affects the temperature calculation, the applicant or licensee shall report the nature of the change or error and its estimated effect on the limiting ECCS analysis to the Commission at least annually. If the change or error is significant, the applicant or licensee shall provide this report within 30 days and include with the report a proposed schedule for providing a reanalysis or taking other action as may be needed to show compliance with 10 CFR 50.46 requirements. This schedule may be developed using an integrated scheduling system previously approved for the facility by the NRC. For those facilities not using an NRC-approved integrated scheduling system, a schedule will be established by the NRC staff within 60 days of receipt of the proposed schedule. Any change or error correction that results in a calculated ECCS performance that does not conform to the criteria set forth in 10 CFR 50.46(b) is a reportable event as described in 10 CFR 50.55(e), 50.72 and 50.73. The affected applicant or licensee shall propose immediate steps to demonstrate compliance or bring plant design or operation into compliance with 10 CFR 50.46 requirements.

The effort associated with the reports required by section 50.46 will vary, depending upon the nature of the ECCS model change or error being addressed. Most of the annual reports disclose that no changes were made to the ECCS evaluation or convey information about minor changes. These reports will require little effort to prepare. Other annual reports may be based on extensive re-analysis of ECCS performance, resulting in a greater expenditure of effort. To arrive at its estimate of the burden associated with the annual reports, the staff used its understanding of the types of reports typically submitted and its experience in the level of effort required to conduct ECCS evaluations.

Appendix K.II.1.a of 10 CFR Part 50 requires that a description of each evaluation model be furnished. The description shall be sufficiently complete to permit technical review of the analytical approach including the equations used, their approximations in difference form, the assumptions made, and the values of all parameters or the procedure for their selection, as for example, in accordance with a specified physical law or empirical correlation.

Appendix K.II.1.b of 10 CFR Part 50 requires that a complete listing of each computer program be furnished to the NRC upon request in the same form as used in the evaluation model (EM). NRC does not anticipate the need to request such information during this clearance period.

A final rule, effective in this clearance renewal, revises Appendix K.I.A to offer licensees the option to use a reduced power level margin for ECCS (emergency core cooling system) evaluation or a maintain the current margin of 2% power. To use the option and apply a lower assumed power level, licensees would be required to demonstrate the uncertainties associated with measuring reactor thermal power. The resulting change to ECCS evaluation results must be reported per Section 50.46(a)(3).

A. JUSTIFICATION

1. Need for and Practical Utility of the Collection of Information

In order to determine licensee compliance with the regulations set forth in 10 CFR 50.46 and Appendix K of 10 CFR Part 50, the NRC needs to know what models and methods have been used to assess ECCS performance.

2. Agency Use of Information

The information identified will be used to determine licensee compliance with the requirements of Appendix K and 10 CFR 50.46(b) and, thus, ensure that the reactor operates within the limits required to protect public health and safety. If not in compliance, the information will allow NRC to assess how and when compliance to the applicable requirements will be achieved.

Without the information required in Section II of Appendix K, the NRC staff would be unable to determine the adequacy of the calculation methods used to evaluate ECCS performance.

3. Reduction of Burden Through Information Technology

There is no legal obstacle to the use of information technology. Moreover, NRC encourages its use; however, at the current time, no responses are submitted electronically.

4. Effort to Identify Duplication and Use Similar Information

This information is not required by other Federal regulations. Applicants and licensees for nuclear power plants are the only source for this information. The Information Requirements Control Automated System (IRCAS) was searched for agency duplication, and none was found.

5. Effort to Reduce Small Business Burden

The provisions of this regulation do not affect small businesses.

6. Consequences to Federal Program or Policy Activities if the Collection is Not Conducted or is Conducted Less Frequently

The frequency with which this information is collected is determined by how often the accepted ECCS EM is modified and whether these changes significantly affect the calculated peak clad temperature. Less frequent collection could adversely affect public health and safety. The proposed rule is a one time voluntary collection from the licensees. The licensees participation is an advantage to the plant operational parameters.

7. Circumstances which Justify Variation From OMB Guidelines

This information collection does not vary from OMB guidelines.

8. Consultations Outside the NRC

Opportunity for public comment on this information collection has been published in the Federal Register.

9. Payment or Gift to Respondents

Not applicable.

10. Confidentiality of Information

The NRC will protect classified, proprietary and sensitive information according to the guidelines provided in 10 CFR 2.790 of its regulations.

11. Justification for Sensitive Questions

This regulation does not request sensitive information.

12. Estimated Industry Burden and Burden Hour Cost

Based on staff experience, the annual burden to industry for modified EM submittals, realistic generic model submittals, schedule and computer printout submittals is estimated at 4,013 burden hours. Attachment A provides a breakdown of this burden.

This is based on an estimate that the average cost to industry for performing an analysis of ECCS performance is 2,500 person hours, a modified EM will involve 1,500 hours, and that preparation and submittal of 1.6 schedules would involve about 13 person hours (8 hours per schedule). An EM printout, if submitted, is expected to involve approximately one hour. Based on an estimate of an average of 1.6 submittals annually (one generic realistic model submittal and 0.6 modified EM submittals annually), the total burden to industry is estimated at 4,013 person hours annually.

One annual report required by Section 10 CFR 50.46(a)(3)(ii) will be submitted by each of the 104 licensees. Based on the staff's experience, the effort involved to prepare these reports is dependent upon the nature of the change to the ECCS evaluation. The staff estimates that, on average, it will take a licensee approximately 20 hours to prepare an annual report. The change allowed by the revision to Appendix K.I.A is expected to require approximately 10.5 additional hours, on average (10 hours for analysis and one-half hour to include the results in the annual report). Not all licensees are expected to use the option provided by the revised Appendix K.I.A. Therefore, the staff assumes that 50 plants will use the option, or 17 respondents per year over 3 years. Therefore, the staff expects that the requirement for an annual report will result in approximately 2259 hours annually [(104-17)20 + (17 x 30.5)= 2258.5 or 2259 hours, rounded up].

Therefore, the total annual burden for industry is estimated to be 6272 hours (4,013 + 2259), at an annual cost of $884,352 (6272 hours x $141).

13. Estimate of Other Additional Costs

None.

14. Estimated Annualized Cost to the Federal Government

It is expected that three generic calculations using realistic models will be submitted during the clearance period, and three modified EM models will be submitted during the next 5-year period, or 0.6 submittals per year. Staff review of a modified EM will require one half of a staff year (SY), and a generic analysis of ECCS performance will require an average of one SY per submittal. The number of reviews performed per year as a result of this regulation is estimated as follows:

Modified EM Submittals:	0.6/yr at .5 SY =	.3 SY
Generic Model Submittals:	1.0/yr at 1 SY =	1.0 SY
Totals:	1.6/yr	1.3 SY

The annualized cost to the NRC would be $293,280 (2,080 hours x $141) for the generic analyses and $90,522 (624 hours x $141) for modified EM submittals. The total annualized cost to the NRC for both generic and modified submittals is estimated as $389,802.

The regulation requires that a schedule for completing the actions needed to comply with applicable Appendix K and 10 CFR 50.46(b) requirements be submitted to NRC with each analysis. Schedule review would require 4 hours of staff time per submittal. At $141 per hour and 1.6 submittals per year, the annualized cost to the NRC would be $902 (1.6 x 4 hours = 6.4; 6.4 x $141).

The annual reports required by the provisions of 10 CFR 50.46(a)(3)(ii) will result in a total burden of 26 hours. One report is expected to be submitted by 104 licensees. It is estimated that it would only take approximately 15 minutes on the average for the staff to peruse these reports. At $141 per hour, the annual cost to NRC would be $3,666 (104 reports x 15 minutes = 26 hours x $141).

Listings of computer programs as required by Appendix K.II.1.b are not expected during this clearance period.

The total cost to the NRC is therefore $394,370 ($389,802 + 902 + 3,666) annually.

This cost is fully recovered through fee assessments to NRC licensees pursuant to 10 CFR Parts 170 and/or 171.

15. Reasons for Changes in Burden or Cost

There is an increase in the estimated burden for section 50.46(a)(3)(ii) based on a correction to the previous clearance submittal. The previous submittal estimated a burden of 4 hours for each annual report required by section 50.46(a)(3)(ii). Information collection and analysis needed to support the report had not been included in the estimated burden. The staff estimates that, on average, it will take a licensee approximately 20 hours to prepare an annual report.

A revision to Appendix K.I.A will allow licensees an option which will require additional data to be supplied in an annual report for those licensees choosing the option. The change allowed by the revision is expected to require approximately 10.5 additional hours, on average. An estimated 17 licensees are expected to choose this option annually, increasing their burden by approximately 519 hours (10.5 x 17).

Although the number of licensees has been reduced from 109 to 104 since the previous clearance submittal, the re-estimated burden required for analysis and reporting under 50.46(a)(3)(ii) has increased the total burden by 1834 hours.

16. Publication for Statistical Use

The information being collected is not expected to be published for statistical use.

17. Reason for Not Displaying the Expiration Date

The requirement is contained in a regulation. Amending the Code of Federal Regulations to display information that, in an annual publication, could become obsolete would be unduly burdensome and too difficult to keep current.

18. Exceptions to the Certification Statement

None.

B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS

Not applicable.

Enclosure:
Attachment A

ATTACHMENT A

OMB STATEMENT FOR THE ECCS RULE CONTAINED
IN APPENDIX K AND SECTION 50.46 OF 10 CFR PART 50
ANNUAL BURDEN AND COST TO INDUSTRY

	Responses per year	Hours per response	Total Annual burden hours	Estimated annual industry cost @$141/hr.
1. Section 50.46 Requirements				
- Realistic EM Submittals	1	2500	2500	$ 352,500
- Modified EM Submittals	0.6	2500	1500	$ 211,500
- Schedule Submittals	1.6	8	13	$ 1,833
- EM Printout Submittal	0	0	0	0
2. Appendix K. II.1.b.	0	0	0	0
3. Appendix K.I.A	Burden included in 50.46(a)(3)(ii)			
4. Reports under 50.46(a)(3)(ii)	87	20	1740	$ 245,340
	17	30.5	519	73,179
Totals:	107.2		6,272	$ 884,352