Section 32

DRAFT SUPPORTING STATEMENT
EARTHQUAKE ENGINEERING CRITERIA FOR NUCLEAR POWER PLANTS

Appendix S to 10 CFR Part 50, and 50.54(ff)

DESCRIPTION OF INFORMATION COLLECTION

Appendix S to Part 50, “Earthquake Engineering Criteria for Nuclear Power Plants," requires applicants to provide the design bases for a nuclear power plant that will ensure that structures, systems, and components important to safety will be able to withstand the natural phenomena specified in General Design Criterion 2 of Appendix A to 10 CFR Part 50 and 10 CFR Part 100 (OMB Clearance No. 3150-0093) without loss of capability to perform their safety functions. Appendix S and 10 CFR 100, in combination, are a revision of Appendix A, "Seismic and Geologic Siting Criteria for Nuclear Power Plants," to Part 100 and apply to applicants who apply for a design certification or combined license pursuant to 10 CFR Part 52, or a construction permit or operating license pursuant to 10 CFR Part 50 on or after January 10, 1997. Three new applications are anticipated during this 3-year clearance period. Existing licensees must continue to meet the requirements of 10 CFR 100, Appendix A (3150-0093).

Paragraph IV(a)(3) of Appendix S states that if vibratory ground motion exceeds that of the Operating Basis Earthquake Ground Motion or if significant plant damage occurs, the licensee must shut down the nuclear power plant. If systems, structures, or components necessary for the safe shutdown of the nuclear power plant are not available after the occurrence of the Operating Basis Earthquake Ground Motion, the licensee must consult with the Commission and must propose a plan for the timely, safe shutdown of the nuclear power plant. Both Paragraph IV(a)(3) of Appendix S and 10 CFR 50.54(ff) require that prior to resuming operations, the licensee must demonstrate to the Commission that no functional damage has occurred to those features necessary for continued operation without undue risk to the health and safety of the public and that the licensing basis is maintained.

A. JUSTIFICATION

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

In support of the agency's mission regarding adequate protection of public health and safety from seismic events, the NRC will need the information requested to assess the adequacy of proposed seismic design bases (siting and engineering) and the design bases for other geological hazards for nuclear power plants. It is to be submitted to the NRC as part of the application and supporting documentation (see the Section 1 Supporting Statement) for a construction permit, operating license, design certification, or combined license for a nuclear power plant.

Moreover, Appendix S to Part 50, as well as 10 CFR 100.23, supplemented by the Standard Format, regulatory guides, and the Standard Review Plan, are used by applicants as general guidance in planning investigations of nuclear power plant sites and designing nuclear power plant structures, systems, and components important to safety to withstand the effects of natural phenomena such as earthquakes.

Information required by Paragraph IV(a)(3) of Appendix S and 10 CFR 50.54(ff) is needed by NRC to assess conditions for restart.

2. Agency Use of Information

The NRC reviews the geological and seismological information to determine the suitability of the proposed site for a nuclear plant and the suitability of the plant design bases established on the proposed site. A construction permit, standard design certification, or combined license cannot be issued until these data have been reviewed and approved by the NRC.

New geological and seismological information that becomes known during the operating life of a plant is also evaluated on the basis of these criteria. The difficulties experienced with these criteria also serve as the basis for ongoing NRC research in the earth sciences.

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 does not duplicate other information being provided to NRC. The Information Requirements Control Automated System (IRCAS) was searched, and no duplication was found.

All pertinent geological and seismological information concerning the nuclear site and the region around the site will be used in the analysis of that site, whether it is supplied by the applicant or not. Similarly, any available engineering and design data will be used, as applicable, in the design review of a proposed nuclear power plant whether it is a product of the criteria requirements or not. The availability of geological, seismological, or engineering data may reduce the applicant's effort related to site investigation or design.

5. Effort to Reduce Small Business Burden

This information collection does not affect small business.

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

Less frequent or no collection of information will result in serious delays in the licensing processes of nuclear power plants or potential additional risks to public health and safety.

7. Circumstances which Justify Variation from OMB Guidelines

There is no variation from the guidelines.

8. Consultation Outside the NRC

Notice of 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

Proprietary information is protected in accordance with the provisions specified in 10 CFR Part 2 of NRC's regulations.

11. Justification for Sensitive Questions

This regulation does not require sensitive information.

12. Estimated Industry Burden and Burden Hour Cost

This estimate is based on the requirement that nuclear power plant structures, systems, and components important to safety are designed to withstand the effects of earthquakes without loss of capability to perform their safety functions. In order for applicants to provide information that shows the functionality of structures, systems, and components to vibratory ground motion, suitable analysis, testing or qualification methods are employed. Based on an estimated industry burden associated with the seismic engineering of nuclear power plant structures, systems, and components of 775,000 hours per application over 5 years, the annual estimated industry burden per application is 155,000 hours at a cost of $24,180,000 (155,000 hours x $156/hour). Three applications are anticipated to be submitted during this 3-year clearance period. We expect that submittal of one application will be initiated during each year of the clearance period. Therefore, the annual burden for the clearance period is estimated as follows:

Year 1:	1 application submitted and under review		155,000 hrs
Year 2:	1 application submitted + 1 under review	(2 x 155,000 hrs)	310,000 hrs
Year 3:	1 application submitted + 2 under review	(3 x 155,000 hrs)	465,000 hrs
Total:			930,000 hrs

Total annualized burden: 310,000 hours (930,000 hours/3 years)
Total annual responses: 1
Total annual cost: $48,360,000 (310,000 x $156/hr)

Staff estimates that of the above annual burden, 10 percent (31,000 hours) is attributable to recordkeeping associated with the requirement, and 90 percent (279,000 hours) is reporting.

Because of the relatively low seismicity near most plants, there is little likelihood that any plant would be required to shut down pursuant to paragraph IV(a)(3) of Appendix S, and therefore, no burden has been included for the requirement. However, in the event of a plant shutdown, approximately 320 hours of effort would be required to inspect the plant and document the inspection.

13. Estimate of Other Additional Costs

The quantity of records to be maintained is judged to be roughly proportional to the record keeping burden. Ten percent of the burden is estimated to be attributable to recordkeeping, or 31,000 hours annually. Based on the number of pages maintained for a typical clearance, the records storage cost has been determined to be equal to .0004 times of the recordkeeping burden cost. Therefore, the storage cost for this clearance is estimated to be $1,934 (31,000 hours x $156/hour x .0004).

14. Estimated Annualized Cost to the Federal Government

The annual Federal burden for staff evaluation of nuclear power plant structures, systems, and components to ensure that they will perform their safety function without loss of capability is estimated at 2,000 hours per respondent. Additionally, consultants and staff from the Department of Energy Laboratories would be employed by the NRC on a case-by-case basis to provide advice in activities related to staff reviews. It is anticipated that an average annual effort for these consultants would not exceed 2,000 hours or $312,000 (2,000 x $156/hour). Three applications are anticipated during this 3-year clearance period, therefore, the annual government cost for this clearance renewal period is estimated to be $1,872,000 (3 applications x 4000 hours x $156 per hour).

In the unlikely event that a plant would be shutdown pursuant to paragraph IV(a)(3), it is estimated that 80 hours of contractor effort would be required to review and assess conditions for restart. Although no plant shutdowns are

expected during the clearance renewal period, the total annual cost per respondent to the Federal Government for such activities related to Appendix S is estimated to be $636,480 (4,000 + 80 x $156/hour).

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

15. Reasons for Changes in Burden or Cost

No applications were anticipated in the current clearance period, while 3 are expected during the renewal period. Additionally, there has been a change to the hourly cost rate from $141 to $156 per hour.

16. Publication for Statistical Use

The collected information is not published for statistical purposes.

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.