

Section 32

FINAL SUPPORTING STATEMENT EARTHQUAKE ENGINEERING CRITERIA FOR NUCLEAR POWER PLANTS

10 CFR 50 Appendix S, and 50.54(ff)

DESCRIPTION OF INFORMATION COLLECTION

10 CFR 50 Appendix S, "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 10 CFR 50 Appendix A and 10 CFR 100 (OMB Clearance No. 3150-0093) without loss of capability to perform their safety functions. 10 CFR 50 Appendix S and 10 CFR 100, in combination, are a revision of 10 CFR 100 Appendix A, "Seismic and Geologic Siting Criteria for Nuclear Power Plants," and apply to applicants who apply for a design certification or combined license pursuant to 10 CFR 52, or for a construction permit or operating license pursuant to 10 CFR 50, on or after January 10, 1997. Five new applications and eighty license amendment requests are anticipated during this 3-year clearance period. Existing licensees must continue to meet the requirements of 10 CFR 100 Appendix A (3150-0093).

10 CFR 50 Appendix S IV(a)(3) 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 10 CFR 50 Appendix S IV(a)(3) 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, 10 CFR Appendix S, 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 10 CFR 50 Appendix S IV(a)(3) 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 are no legal obstacles to reducing the burden associated with this information collection. The NRC encourages respondents to use information technology when it would be beneficial to them. NRC issued a regulation on October 10, 2003 (68 FR 58791), consistent with the Government Elimination Act, which allows its licensees, vendors, applicants, and members of the public the option to make submissions electronically via CD-ROM, e-mail, special Web-based interface, or other means. It is estimated that 100% of the potential responses are filed electronically.

4. Effort to Identify Duplication and Use Similar Information

No sources of similar information are available. There is no duplication of requirements. NRC has in place an ongoing program to examine all information collections with the goal of eliminating all duplication and/or unnecessary information collections.

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

Opportunity for public comment on the information collection requirements for this clearance package was published in the Federal Register on May 14, 2013 (78 FR 28244). No comments were received.

9. Payment or Gift to Respondents

Not applicable.

10. Confidentiality of Information

Confidential and proprietary information is protected in accordance with NRC regulations at 10 CFR 9.17 (a) and 10 CFR 2.390 (b)

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 a 5-year review period, the annual estimated industry burden per application is 155,000 hours at a cost of \$42,470,000 (155,000 hours x \$274/hour). In addition, the estimated industry burden associated with a licensing amendment request is \$274,000 (1,000 hours x \$274/hour). Five new applications and eighty license amendment requests are anticipated to be submitted during this 3-year clearance period for new reactors. We expect submission of four new applications and thirty license amendment requests to be initiated during the first year of the

clearance period. During the second year, we expect one new application and thirty license amendment requests to be submitted. Twenty license amendment requests are expected to be submitted during the third year. Therefore, the annual burden for the clearance period is estimated as follows:

Year 1:	4 new applications and 30 license amendment requests submitted and under review	(4 x 155,000 hrs + 30 x 1,000 hrs)	650,000 hrs
Year 2:	30 license amendment requests and 1 new application submitted +4 applications under review	(30 x 1,000 hrs + 5 x 155,000 hrs)	805,000 hrs
Year 3:	20 license amendment requests submitted + 5 new applications under review	(20 x 1,000 hrs + 5 x 155,000 hrs)	795,000 hrs
Total:			2,250,000 hrs

Total annualized burden: 750,000 hours (2,250,000 hours/3 years)
 Total annual responses: 32
 Total annual cost: \$205,500,000 (750,000 x \$274/hr)

Staff estimates that of the above annual burden, 10 percent (75,000 hours) is attributable to recordkeeping associated with the requirement, and 90 percent (675,000 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 10 CFR Part 50 Appendix S IV(a)(3), 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. If required, this burden would be \$87,680 (320 x \$274).

13. Estimate of Other Additional Costs

The quantity of records to be maintained is judged to be roughly proportional to the recordkeeping burden. 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 \$8,220 (75,000 hours x \$274/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 for a new application and 125 hours per license amendment request. 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 \$514,000 (2,000 x \$274/hour) for a new application and 125 hours or \$34,250 (125 x \$274/hour) per license amendment request. Five new applications and eighty license amendment requests are anticipated during this 3-year clearance period, therefore, the annual government cost for this clearance renewal period is estimated to be \$1,028,000 (1 application x 4350 hours x \$274 per hour + 80 license amendment requests). In the unlikely event that a plant would be shutdown pursuant to 10 CFR Part 50 Appendix S 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 10 CFR Part 50 Appendix S is estimated to be \$1,117,920 (4,000 + 80 x \$274/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

The overall licensee burden has increased from 310,000 hours to 750,000 hours an increase of 440,000 hours – this significant increase is due in large part to the expected number of license amendment requests as a result of the issuance of the combined operating license for Vogtle in February and V.C. Summer in March, 2012. Thus, as a result of the issuance of these two COLs, the agency is expecting license amendments during this clearance cycle from the Vogtle and V.C. Summer licensees related to construction of the AP1000.

There is no change in the level of effort required to process the application since the last update, it remains at 1,090,167 hours. The increase in cost is due to the increase in the fee rate from \$257 to \$274.

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.