

FINAL SUPPORTING STATEMENT  
FOR  
PRIMARY REACTOR CONTAINMENT LEAKAGE TESTING  
FOR WATER-COOLED POWER REACTORS  
10 CFR 50, APPENDIX J

DESCRIPTION OF THE INFORMATION COLLECTION

In 10 CFR 50, Appendix J, "Primary Reactor Containment Leakage Testing for Water-Cooled Power Reactors," provides for pre-operational and periodic verification, by tests, of the leakage integrity of the primary reactor containment and systems, and components which penetrate containment, of water-cooled power reactors, other than facilities for which the certifications required under 10 CFR 50.82(a)(1) have been submitted. Tests are conducted upon completion of construction of the primary reactor containment building (containment), and periodically thereafter.

The 10 CFR 50 Appendix J is divided into two options: Option A, "Prescriptive Requirements," and Option B, "Performance-Based Requirements." Option B is a performance-based rule in which the intervals between tests are established, in part, based on the previous leakage rate performance of the component or system. A licensee may adopt, on a voluntary basis, either or both of the overall leakage testing requirements (Type A tests) and the local leakage rate testing requirements (Type B and C tests) of Option B. In either case, the recordkeeping requirements of Option B must be implemented. The pre-operational and periodic Type A, B, and C tests must be documented to show that the performance criteria for leakage have been met. The comparison to previous results of the performance of the overall containment system, and of individual components within it, must be documented to show that the test intervals established for the containment system and components within it are adequate. These records must be available for inspection at plant sites, but licensees are not required to submit these results to the Nuclear Regulatory Commission (NRC).

Neither option of 10 CFR 50 Appendix J contains specific reporting requirements. All requirements to make reports to the NRC were eliminated from 10 CFR 50 Appendix J (in what is now known as Option A) in 1995, and Option B, promulgated in 1995, also contains no reporting requirements, other than referring to the requirements contained in 10 CFR 50.72 and 10 CFR 50.73. For either option, licensees, under 10 CFR 50.72 and 10 CFR 50.73, currently report any instances of leakage exceeding authorized limits in the Technical Specifications (TS) of the license.

Although there are no specific reporting requirements, each option has recordkeeping requirements.

## OPTION A

10 CFR 50, Appendix J, Section III requires licensees to develop a program consisting of a schedule for conducting Type A, B and C tests for leak testing the primary reactor containment and related systems and components penetrating the primary containment pressure boundary. Since this information is presented in the Final Safety Analysis Report (FSAR), any burden involved in its preparation is considered under preparation of the FSAR. (See the Section 1 Supporting Statement.)

10 CFR 50, Appendix J, Section III.A.6 states that if a licensee's containment does not pass the Type A test, the test schedule applicable to subsequent Type A tests will be reviewed and approved by the Commission. No notifications are expected during this clearance period.

10 CFR 50, Appendix J, Section V.B requires recordkeeping of test results. The pre-operational and periodic tests must be documented in a readily available summary report that will be made available for inspection, upon request, at the nuclear power plant. The summary report shall include a schematic arrangement of the leakage rate measurement system, the instrumentation used, the supplemental test method, and the test program selected as applicable to the pre-operational test, and all the subsequent periodic tests. The report shall contain an analysis and interpretation of the leakage rate test data for the Type A test results to the extent necessary to demonstrate the acceptability of the containment's leakage rate in meeting acceptance criteria.

### 10 CFR 50, Appendix J, Section V.B. 2

For each periodic test, leakage test results from Type A, B, and C tests shall be included in the summary report. The summary report shall contain an analysis and interpretation of the Type A test results and a summary analysis of periodic Type B and Type C tests that were performed since the last Type A test. Leakage test results from Type A, B, and C tests that failed to meet the acceptance criteria of Appendix J, Sections III.A.5(b), III.B.3, and III.C.3 shall be included in a separate accompanying summary report that includes an analysis and interpretation of the test data, the least squares fit analysis of the test data, the instrumentation error analysis, and the structural conditions of the containment or components, if any, which contributed to the failure in meeting the acceptance criteria. Results and analyses of the supplemental verification test employed to demonstrate the validity of the leakage rate test measurements shall also be included.

## OPTION B

10 CFR 50, Appendix J, Section III.A requires that a Type A test be conducted 1) after the containment system has been completed and is ready for operation and 2) at a periodic interval based on the historical performance of the overall containment system as a barrier to fission product releases to reduce the risk from reactor accidents. The test results must be compared with previous results to examine the performance history of the overall containment system to limit leakage.

10 CFR 50, Appendix J, Section III.B requires Type B and Type C pneumatic tests to be conducted (1) prior to initial criticality, and (2) periodically thereafter at intervals based on the safety significance and historical performance.

The performance-based testing program must be established which contains a performance criterion for Type B and C tests, consideration of leakage-rate limits and factors that affect performance, evaluations of performance, and comparison to previous test results.

10 CFR 50, Appendix J, Section IV requires that the results of pre-operational and periodic Type A, B, and C tests must be documented to show that performance criteria for leakage have been met. The comparison to previous results of the performance of the overall containment system and of individual components within it must be documented to show that the test intervals established for the containment system and components within it are adequate. These records must be available for inspection at plant sites.

10 CFR 50, Appendix J, Section V.A requires that if the requirements for tests in Option B, Section III.A, or Option B, Section III.B, are implemented, the recordkeeping requirements in Option B, IV, for these tests must be substituted for the reporting requirements of the tests contained in Option A.

10 CFR 50, Appendix J, Section V. B. 2 requires that a licensee or applicant for an operating license may adopt Option B, or parts thereof, by submitting its implementation plan and request for revision to technical specifications. (Burden for changes to TS is covered by the Section 2 Supporting Statement.)

10 CFR 50, Appendix J, Section V. B. 3

The regulatory guide or other implementation document used to develop a performance-based leakage program must be included, by general reference, in the plant's TS. The submittal for TS revisions must contain justification, including supporting analyses, if the licensee chooses to deviate from methods approved by the Commission and endorsed in a regulatory guide.

10 CFR 50, Appendix J, Section V. B. 4

The detailed licensee programs for conducting testing under Option B must be available at the plant site for inspection.

A. JUSTIFICATION

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

The primary reactor containment is designed to contain any operational or post-accident releases of radioactivity within specified limits. Calculations of the impact of a radiological release on public health and safety are dependent upon predictable leakage from the containment. The required tests, and their documentation, ensure that the containment is built and maintained as designed, and that leakage limits are not exceeded.

2. Agency Use of Information

Pre-operational leakage tests are the only means to verify that containment structures have in fact been built within the leakage levels specified as a condition of licensing by the NRC.

Information included in the on-site licensee records is reviewed to determine the results achieved, as well as to judge the accuracy and validity (reliability) of the data.

The records of the periodic leakage tests are needed by the NRC in order to verify, on an audit basis, that containment leakage is maintained below the specified level throughout its operational life. Periodic information is needed for the same reasons as pre-operational test information, but in addition, is compared with that in the pre-operational test report and previous periodic test reports.

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 Paperwork 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 approximately 95% 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 requirement does not affect small business.

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

The NRC would not be able to determine, in a timely fashion, whether structures have been built and maintained within limits that have been established to ensure the protection of the health and safety of the public.

7. Circumstances which Justify Variation from OMB Guidelines

Leakage test results, implementation plans, and records of the performance-based testing program must be kept for the operating lifetime of each nuclear plant for reference purposes.

8. Consultations 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 10 CFR 9.17(a) and 10 CFR 2.390(b). However, no information normally considered confidential or proprietary is requested.

11. Justification for Sensitive Questions

This regulation does not request sensitive information.

12. Estimated Industry Burden and Burden Hour Cost

Currently, all licensees use Option B for Type A, and Type B and C testing.

Sixty (60) hours annually are necessary for analysis and maintenance of the ongoing program for each license. This results in an estimated recordkeeping burden of 6,240 hours for this clearance period based on 104 licensees.

Based on the above and using the professional staff-hour fee rate, the combined annual recordkeeping burden and cost for all NRC commercial reactor licensees to comply with 10 CFR 50 Appendix J is 6,240 hours at a cost of \$1,709,760 (6,240 hours X \$274/hour). See Table 1.

13. Estimate of Other Additional Costs

The NRC has determined that the quantity of records to be maintained is roughly proportional to the recordkeeping burden and, therefore, can be used to calculate approximate records storage costs. Based on the number of pages maintained for a typical clearance, the records storage cost has been determined to be equal to 0.0004 times the recordkeeping burden cost. Because the recordkeeping burden is estimated to be 6,240 hours, the storage cost for this clearance is \$684 (6,240 hours x 0.0004 x \$274/hour).

1. Estimated Annualized Cost to the Federal Government

The NRC has minimized recordkeeping requirements and has eliminated the reporting requirements in Appendix J, except for the completed one-time requirement to submit implementation plans for licensees adopting Option B.

The burden on the Federal government for routine inspection of records is estimated to be minimal. Costs to the NRC are fully recovered through fee assessments to NRC licensees pursuant to 10 CFR 170 and/or 10 CFR 171.

15. Reasons for Changes in Burden or Cost

There is no change in burden. The total cost has increased because the fee rate increased 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.

TABLE 1  
ANNUAL INDUSTRY BURDEN AND COST - RECORDKEEPING

10 CFR 50 Appendix J Activity	Number of Recordkeepers	Estimated Burden Hours Per Recordkeeper Per Year	Total Estimated Recordkeeping Burden Hours Per Year	Estimated Industry Cost Per Year @ \$274 Per hour
OPTION B Development and Ongoing Analyses & Maintenance of Performance Based Leakage Testing Program	104	60	6240	\$1,709,760
Record Storage (Cost = 0.0004 X Recordkeeping Burden Hours)				\$684
TOTAL BURDEN				\$1,710,444