

FINAL SUPPORTING STATEMENT
FOR

NRC GENERIC LETTER 2016-XX, MONITORING OF NEUTRON-ABSORBING MATERIALS
IN SPENT FUEL POOLS

(3150-XXXX)

NEW

Description of the Information Collection

The Atomic Energy Act of 1954, as amended (AEA) requires that licensees provide reasonable assurance of adequate protection to public health and safety. NRC verification of compliance with the NRC's regulations and license conditions with respect to spent fuel pool neutron absorbers provides reasonable assurance of such adequate protection with respect to those neutron absorbers. The NRC has authority to collect this type of information pursuant to Sections 161 and 182 of the AEA, and 10 CFR 50.54(f), to enable the NRC to determine if the license to operate a nuclear facility needs to be modified, revoked, or suspended. The Commission uses the information collected to verify that licensees meet the NRC regulations and requirements of their license.

Many licensees credit neutron-absorbing materials in their analyses demonstrating that the subcriticality requirements of 10 CFR 50.68, "Criticality accident requirements," General Design Criteria (GDC) 62, "Prevention of Criticality in Fuel Storage and Handling," in Appendix A, "General Design Criteria for Nuclear Power Plants," of 10 CFR Part 50, or other equivalent licensing basis requirements are met. Neutron-absorbing materials installed in the spent fuel pool that are credited for maintaining subcriticality must be able to perform their neutron-absorbing safety function during both normal operating conditions and design basis events. Monitoring of neutron-absorbing materials is intended to identify when degradation may affect the ability to perform the neutron-absorbing safety function, so that appropriate corrective action can be taken. Therefore, the NRC is requesting information to determine if: (1) addressees have adequate neutron-absorbing material monitoring programs in place to ensure compliance with applicable NRC the regulations and the licensing basis for each facility, and (2) the agency should take additional regulatory action with respect to neutron-absorbing materials installed in spent fuel pools.

A. JUSTIFICATION

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

Reactivity and, therefore, criticality is determined by local phenomena, including how far a neutron is expected to travel in the given environment. To ensure that licensees meet the requirements of 10 CFR 50.68 and GDC 62 (or equivalent licensing basis requirements), the appropriate parameters on a local level must be known and appropriately considered. For licensees who credit neutron absorbing material in their nuclear criticality safety analyses, this requires that they know the present condition of the neutron-absorbing materials, and have a plan to manage the materials' future condition.

The NRC staff has identified uncertainties with tools that the industry commonly uses to monitor the condition of the neutron-absorbing materials used in spent fuel pools. When the NRC staff conducted further technical evaluations to assess the current state of licensees' neutron-absorbing material monitoring programs in spent fuel pools, the staff identified multiple uncertainties and incidences where licensees were ineffective in adequately monitoring and managing the condition of their neutron-absorbing materials. In some cases, the NRC staff found that licensees had not ensured compliance with regulatory requirements. The outcome of the generic letter will ensure that the NRC fulfils its mission of protecting the public.

2. Agency Use of Information

Using the information gathered by this information request, the NRC will verify that power and non-power reactor licensees are maintaining compliance with NRC regulations and applicable licensing basis requirements, and will determine if additional regulatory action is necessary.

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 58792), 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. The NRC has an Electronic Information Exchange system that provides an electronic submission capability for NRC licensees to voluntarily submit documents electronically. This system provides certificates of authority for electronic signatures with licensees, contractors, and other Government organizations. It is estimated that approximately 100 percent of the potential responses are filed electronically.

4. Effort to Identify Duplication and Use Similar Information

The information being requested may possibly be found in docketed documents submitted to the NRC, and provisions have been made in the generic letter to allow licensees to reference these documents in response to the generic letter. No other sources of the requested information are available to the NRC. There is no duplication of requirements. NRC has an ongoing program in place to examine all information collections with the goal of eliminating all duplication and/or unnecessary information collections.

The information request is based upon NRC regulations and specific license requirements to ensure safe operation of power and non-power reactors. It requests that licensees submit information to demonstrate compliance with regulatory requirements and applicable license conditions regarding monitoring of neutron-absorbing materials that is credited in meeting NRC subcriticality requirements related to fuel storage. This type of information is not readily available to the NRC on a generic basis.

5. Effort to Reduce Small Business Burden

None of the licensees responding to this collection are small businesses.

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

As described in the justification for this action, the NRC considers this information to be critical to its mission. The NRC is required by the Atomic Energy Act to verify that licensees are in compliance with the regulations and license conditions. Compliance with the regulations provides reasonable assurance of public health and safety.

7. Circumstances Which Justify Variation from OMB Guidelines

Not applicable.

8. Consultations Outside the NRC

The opportunity for public comment on the information collection requirements for this clearance package was published in the *Federal Register* on June 4, 2015, (80 FR 31930), which resulted in five public comments.

The public comments filed in response to the June 2015 publication, which requested comments associated with the burden to respond to the final generic letter, indicated that the licensees still believed that the estimates for the expected licensee burden and number of days to respond were too low. The NRC staff increased the response time from 120 days to 210 days to address concerns that a significant number of licensees would be entering fall refueling outages and the holiday season, which would limit available resources. The public comments related to the estimated burden to respond to the generic letter showed that licensees were expecting to do significant amounts of work to generate new information or verify the non-existence of specific items. The NRC position is that all records necessary to demonstrate compliance with regulatory requirements should be readily available, in accordance with the recordkeeping requirements in Appendix B of 10 CFR 50. Therefore, licensees are only expected to do a reasonable search of existing records. If there is information that cannot easily be produced because it is not part of the plant's licensing basis, then a response to that effect is sufficient.

In addition, the NRC sent a public consultation e-mail to solicit public comments from the following stakeholders: Entergy, Southern Nuclear, Dominion, National Institute of Science and Technology, Electric Power Research Institute and Nuclear Energy Institute. There were no public comments received from these stakeholders via e-mail; however, Entergy and Nuclear Energy Institute submitted comments during the public comment period associated with the June 2015 *Federal Register* publication. The staff was unable to determine if the public consultation e-mail encouraged their participation.

Additionally, the NRC published a draft version of this generic letter in the *Federal Register* on March 11, 2014 with a solicitation period of 60 days for public comments on the merits of the generic letter (79 FR 13685). The agency held a public meeting during the public comment period to allow stakeholders to engage with the staff, and obtain any needed clarifications on the generic letter. The NRC received 39 unique public comments from 11 different organizations. The primary concerns were related to the burden on licensees, especially whether the time and resources that licensees would expend to fulfill the request for information were justified when compared to the potential safety significance of the issue. After the staff considered all public comments, the Advisory Committee on Reactor Safeguards (ACRS) was provided with an opportunity to review and comment on the generic letter.

One of the primary concerns from industry stakeholders and the ACRS was that the draft generic letter did not provide sufficient clarity on the expected scope of response from individual licensees based on the applicable concerns of NRC staff. In particular, the ACRS recommended that the staff tailor requests based on the individual licensee's specific neutron-absorbing material, that material's susceptibility to degradation or deformation, and the extent to which the individual licensee credits the neutron absorbing material in its licensing basis. In response, the NRC staff conducted two additional public meetings to discuss and address these concerns with the public and industry. As a result of these meetings, the staff was able to develop a tiered approach that responded to the recommendation of ACRS while also satisfying both NRC staff and stakeholder concerns.

The NRC staff has taken every measure when considering the potential burden on the industry in responding to this generic letter. In the submitted public comments responding to the March 2014 publication, licensees stated in numerous instances that they felt that the generic letter was unnecessary in light of the safety significance of the issue. However, one commenter explicitly addressed the cumulative effect of regulations questions provided with the draft generic letter. This response, in part, reiterated the aforementioned general position of the licensees. The same commenter stated that due to the broad scope of the information request, the time licensees would need to respond would be much longer than NRC staff had estimated. Another public comment associated with the draft generic letter provided an estimate of the administrative burden associated with affirmation procedures. In response, the NRC staff increased the expected licensee burden from 120 man-hours to 170 man-hours, and extended the response time from 90 days to 120 days.

Nevertheless, in order to further mitigate burden licensees may not have foreseen, the NRC staff recently conducted an additional public meeting to allow stakeholders to discuss options for streamlining the response process, including defining the applicability of Appendix A to specific situations, and obtaining some information applicable to multiple licensees through a single submitted document. The purpose of the meeting was to provide licensees with the opportunity to clarify their plant-specific obligations in responding to this generic letter. There will be additional meetings as needed. The scope of these meeting(s), however, will not change the intent of the generic letter

The NRC staff will continue to coordinate with addressees to better define the expected scope for responses. The NRC staff believes that this coordinated approach will further minimize the potential burden to licensees.

It is important to note that the NRC staff has already had numerous interactions with stakeholders during public meetings and regulatory conferences. All feedback obtained was considered by the NRC staff when determining the estimated burden.

9. Payment or Gift to Respondents

Not applicable.

10. Confidentiality of Information

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

11. Justification for Sensitive Questions

Not applicable.

12. Estimated Burden and Burden Hour Cost

The NRC staff estimates that the time to respond to all requirements contained in the generic letter information request will require no more than 170 hours for most sites, for a total of 11,900 hours (70 sites x 170 hours), plus an extra 160 hours for two power reactor licensees that credit more than two neutron-absorbing material types, at a cost of \$3,364,740 (12,060 hours x \$279/hr). For non-power reactor licensees, the time to respond to all requirements contained in the generic letter information request will require no more than 20 hours per licensee, for a total of 840 hours (42 non-power reactor licensees x 20 hours), at a cost of \$234,360 (840 hours x \$279/hr). Therefore, the entire industry burden to respond to the 50.54(f) information request is estimated to be no more than \$3,599,100 (12,900 hours total at \$279/hr).

For some sites, the burden may be higher than assumed above because different spent fuel pools at their site may credit significantly different neutron-absorbing materials and/or monitoring programs, requiring separate responses to this generic letter. However, the NRC staff also recognizes that: (1) most multi-unit sites are expected to submit a single response covering all on-site fuel storage; (2) many licensees will not be required to provide a detailed response to this generic letter because they meet the criteria of Categories 1 through 3 as described in the **Requested Information from Power Reactor Addressees** section of the generic letter; and (3) many licensees will be able to reference previously docketed information in responding to part of the information request. Therefore, the total burden is not expected to be higher than estimated above.

The NRC staff considers neutron-absorbing materials in spent fuel pools that are credited to meet NRC subcriticality requirements to be safety related components. As such, licensees should be maintaining the information being requested in

accordance with provisions found in Appendix B of 10 CFR Part 50 requiring the existence of a quality assurance program that appropriately characterizes each component (Criterion VII, "Control of Purchased Material, Equipment and Services," and Criterion VIII, "Identification and Control of Materials, Parts, and Components"), that provides for appropriate testing to demonstrate satisfactory in-service performance of components (Criterion XI), and that ensures that sufficient records will be maintained to furnish evidence of such activities in an identifiable and retrievable form (Criterion XVII, "Quality Assurance Records"). The NRC staff recognizes that site-specific considerations may require some flexibility in the response to be provided to the NRC, and has incorporated such language in the generic letter. The NRC is very explicit that no new analyses, new programs, or new research is to be developed or implemented in response to this generic letter, which considerably limits the burden for licensees to a reasonable search for information and the associated documentation.

13. Estimate of Other Additional Costs

There are no additional costs.

14. Estimated Annualized Cost to the Federal Government

The NRC staff estimates that review of the information in response to this information request will require about five full-time equivalent (FTE) employees over the course of a year. At an estimated 2,080 hours per FTE, NRC effort is estimated at 10,400 hours or \$2,901,600 (2,080 hours/FTE x 5 FTE x \$279/hr).

15. Reasons for Change in Burden or Cost

The current clearance request is a new collection, issued pursuant to 10 CFR 50.54(f), which would impose a total of 12,900 hours of burden on power reactor licensees at 70 sites and non-power reactor licensees at 42 sites to verify that they are in compliance with the regulatory requirements, and demonstrate that they provide adequate protection of public health and safety.

16. Publication for Statistical Use

Not applicable.

17. Reason for Not Displaying the Expiration Date

Not applicable.

18. Exceptions to the Certification Statement

None.

B. COLLECTIONS OF INFORMATION EMPLOYING STATISTICAL METHODS