



DRAFT REGULATORY GUIDE

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DRAFT REGULATORY GUIDE DG-2005

(Proposed Revision 1 of Regulatory Guide 2.3, July 1976)

QUALITY VERIFICATION FOR PLATE-TYPE URANIUM-ALUMINUM FUEL ELEMENTS FOR USE IN RESEARCH AND TEST REACTORS

A. INTRODUCTION

This revised regulatory guide provides guidance that the staff of the U.S. Nuclear Regulatory Commission (NRC) considers acceptable for complying with the Commission's regulations on establishing and executing a quality assurance program for verifying the quality of plate-type uranium-aluminum fuel elements used in research and test reactors (RTRs).

Title 10, Section 50.34(a) (7), of the *Code of Federal Regulations* (10 CFR 50.34(a) (7)) (Ref. 1), requires each applicant for a construction permit to build a production or utilization facility to describe in its preliminary safety analysis report the quality assurance program that will be applied to the design, fabrication, construction, and testing of the facility's structures, systems, and components.

The NRC issues regulatory guides to describe to the public methods that the staff considers acceptable for use in implementing specific parts of the agency's regulations, to explain techniques that the staff uses in evaluating specific problems or postulated accidents, and to provide guidance to applicants. Regulatory guides are not substitutes for regulations and compliance with them is not required.

This regulatory guide contains information collection requirements covered by 10 CFR Part 50 that the Office of Management and Budget (OMB) approved under OMB control number 3150-0011. The NRC may neither conduct nor sponsor, and a person is not required to respond to, an information

This regulatory guide is being issued in draft form to involve the public in the early stages of the development of a regulatory position in this area. It has not received final staff review or approval and does not represent an official NRC final staff position. Public comments are being solicited on this draft guide (including any implementation schedule) and its associated regulatory analysis or value/impact statement. Comments should be accompanied by appropriate supporting data. Written comments may be submitted to the Rules, Announcements, and Directives Branch, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; submitted through the NRC's interactive rulemaking Web page at <http://www.nrc.gov>; or faxed to (301) 492-3446. Copies of comments received may be examined at the NRC's Public Document Room, 11555 Rockville Pike, Rockville, MD. Comments will be most helpful if received by May 21, 2012.

Electronic copies of this draft regulatory guide are available through the NRC's interactive rulemaking Web page (see above); the NRC's public Web site under Draft Regulatory Guides in the Regulatory Guides document collection of the NRC Library at <http://www.nrc.gov/reading-rm/doc-collections/>; and the NRC's Agencywide Documents Access and Management System (ADAMS) at <http://www.nrc.gov/reading-rm/adams.html>, under Accession No. ML11206A205. The regulatory analysis may be found in ADAMS under Accession No. ML11206A211.

collection request or requirement unless the requesting document displays a currently valid OMB control number. This regulatory guide is a rule as designated in the Congressional Review Act (5 U.S.C. 801–808). However, the NRC has determined this regulatory guide is not a major rule as designated by the Congressional Review Act and has verified this determination with the OMB.

B. DISCUSSION

The NRC initially issued Regulatory Guide 2.3 in 1976 to provide guidance concerning procedures that the staff considered acceptable for complying with the agency’s regulatory requirements in 10 CFR 50.34(a) (7). Toward that end, the original guide endorsed specific safety standards that ANS-15.2 developed to provide guidelines for establishing and executing a program designed to verify the quality of plate-type uranium-aluminum fuel elements for use in research reactors.

The American Nuclear Society (ANS) Subcommittee on the Operation of Research Reactors (ANS-15) approved American National Standards Institute (ANSI)/ANS-15.2-1999, “Quality Control for Plate-Type Uranium-Aluminum Fuel Elements” (Ref. 2), in March 1999 and subsequently reaffirmed the standard in March 2009. The foreword to ANSI/ANS-15.2-1999 draws the reader’s attention to several important assumptions about its use. The guidance here is intended to be applied to RTRs.

ANSI/ANS-15.2-2009, “Quality Verification for Plate-Type Uranium-Aluminum Fuel Elements” (Ref. 3), provides general guidance for establishing a program that verifies the quality of plate-type uranium-aluminum fuel elements. However, RTR licensees can find other useful guidance for quality verification programs in other NRC documents. For example, Regulatory Guide 2.5, “Quality Assurance Program Requirements for Research and Test Reactors,” Revision 1, issued June 2010 (Ref. 3) contains methods that the NRC staff finds acceptable for complying with the Commission’s regulations on the overall quality assurance program requirements for RTRs. Specifically, Section C of Regulatory Guide 2.5 endorses the use of, and supports the general requirements for establishing and executing, a quality assurance program for the design, construction, testing, modification, and maintenance of RTRs. ANSI/ANS-15.8-1995 (R-2005), “Quality Assurance Program Requirements for Research Reactors,” (Ref. 4) also provides a method that the NRC finds acceptable for complying with the program requirements in 10 CFR 50.34, “Contents of Applications; Technical Information.”

C. STAFF REGULATORY GUIDANCE

The NRC staff finds the recommendations in ANSI/ANS-15.2-2009, “Quality Verification for Plate-Type Uranium-Aluminum Fuel Elements,” generally acceptable and finds that the standard provides an adequate basis for complying with the requirements in 10 CFR 50.34(a) (7) in regard to establishing and executing a quality assurance program for verifying the quality of plate-type uranium-aluminum fuel elements for use in RTRs, subject to the following conditions:

- (1) ANSI/ANS-15.2-2009, Section 10.2, “Surface Finish,” states, “Scratches greater than the maximum specified depths are cause for rejection.” The NRC staff considers that some surface indications could exceed the maximum specified depth but still be acceptable.
- (2) ANSI/ANS-15.2-2009, Section 13.4, “Verification of Fuel Element Assembly Dimensions,” requires a verification of items 1–6, with item 6 designated “functional fit.” The NRC staff considers item 6 a desired test, but not required.

The references identified in ANSI/ANS-15.2-2009 may provide relevant information and may be endorsed elsewhere or incorporated in the licensing basis of the facility. However, recognition of the acceptability of ANSI/ANS-15.2-2009 does not necessarily extend to other referenced standards.

D. IMPLEMENTATION

The purpose of this section is to provide information to applicants and licensees regarding the NRC's plans for using this regulatory guide. While backfitting is applied to nuclear power reactors and other nuclear facilities, backfit does not apply to test, research or training reactors.

In some cases, applicants or licensees may propose or use a previously established acceptable alternative method for complying with specified portions of the NRC's regulations. Otherwise, the methods described in this guide will be used in evaluating compliance with the applicable regulations for license applications, license amendment applications, and amendment requests.

REFERENCES¹

1. 10 CFR Part 50, “Domestic Licensing of Production and Utilization Facilities,” U.S. Nuclear Regulatory Commission, Washington, DC.
2. ANSI/ANS-15.2-1999 (R 2009), “Quality Control for Plate-Type Uranium-Aluminum Fuel Elements,” American Nuclear Society, La Grange Park, IL.²
3. Regulatory Guide 2.5, “Quality Assurance Program Requirements for Research and Test Reactors,” Revision 1, U.S. Nuclear Regulatory Commission, Washington, DC, June 2010.
4. ANSI/ANS-15.8-1995 (R-2005), “Quality Assurance Program Requirements for Research Reactors,” American Nuclear Society, La Grange Park, IL.²

¹ Publicly available NRC published documents are available electronically through the NRC Library on the NRC’s public Web site at <http://www.nrc.gov/reading-rm/doc-collections/>. The documents can also be viewed online or printed for a fee in the NRC’s Public Document Room (PDR) at 11555 Rockville Pike, Rockville, MD; the mailing address is USNRC PDR, Washington, DC 20555; telephone 301-415-4737 or (800) 397-4209; fax (301) 415-3548; and e-mail pdr.resource@nrc.gov.

² Copies of the non-NRC documents included in these references may be obtained directly from the publishing organization.