[7590-01-P]

NUCLEAR REGULATORY COMMISSION

Draft Regulatory Guide: Issuance, Availability

[NRC-2009-XXXX]

AGENCY: Nuclear Regulatory Commission.

ACTION: Notice of Issuance and Availability of Draft Regulatory Guide, DG-1199, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors."

FOR FURTHER INFORMATION CONTACT: Mark Blumberg, U. S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone: (301) 415-1083 or e-mail Mark.Blumberg@nrc.gov.

SUPPLEMENTAL INFORMATION:

I. Introduction

The U.S. Nuclear Regulatory Commission (NRC) is issuing for public comment a draft regulatory guide in the agency's "Regulatory Guide" series. This series was developed to describe and make available to the public such information as methods that are acceptable to the NRC staff for implementing specific parts of the NRC's regulations, techniques that the staff uses in evaluating specific problems or postulated accidents, and data that the staff needs in its review of applications for permits and licenses.

The draft regulatory guide (DG), titled, "Alternative Radiological Source Terms for Evaluating Design Basis Accidents at Nuclear Power Reactors," is temporarily identified by its task number, DG -1199, which should be mentioned in all related correspondence. DG-1199 is proposed Revision 1 of Regulatory Guide 1.183, dated July 2000. This regulatory guide

describes a method that the staff of the NRC considers acceptable in complying with alternative source term (AST) regulations for design basis accident dose consequence analysis. This guidance for light-water reactor designs includes the scope, nature, and documentation of associated analyses, evaluations; consideration of impacts on analyzed risk; and content of submittals. This guide establishes the AST based on NUREG-1465, "Accident Source Terms for Light-Water Nuclear Power Plants," and identifies significant attributes of other accident source terms that may be acceptable. This guide also identifies acceptable radiological analysis assumptions for use in conjunction with the AST. In some cases, unusual site characteristics, plant design features, or other factors may require different assumptions, which will be considered on an individual case basis.

The draft guide references Regulatory Guide 1.89, "Environmental Qualification of Certain Electric Equipment Important to Safety for Nuclear Power Plants," regarding environmental qualification analyses that may be affected by implementing alternate source terms. This guidance will be available in the forthcoming revision of Regulatory Guide 1.89 and is currently available in Appendix I of Regulatory Guide 1.183, Revision 0.

II. Further Information

The Commission invites advice and recommendations on the content of DG-1199. Specifically, comments are solicited for the following questions. Each comment should include supporting basis or rationale to enable the staff to fully understand the point of view being provided.

1. The alternative source term methodology described in the draft regulatory guide permits the assumption that the release of radioactive effluent to the environment occurs at some time period following the onset of the accident within the plant facility. Section 5.3, Meteorology Assumptions, provides guidance on pairing atmospheric dispersion factors

(χ/Q values) with the periods of maximum postulated release of radioactive effluent to the environment.

   a. Is it equally or more appropriate to include consideration of engineering factors such as time of control room isolation and initiation of filtration, in addition to the time sequence release of radiological effluent to the environment, when assessing the limiting dose to control room operators?

2. Table 3 of DG-1199 provides revised non-loss of coolant accident fission product gap inventories applicable to all current fuel designs. The purpose of revising Table 3 was to expand its applicability by replacing the prior footnote 11 limitation (i.e., 6.3 kw/ft beyond 54 GWd/MTU) with bounding fuel rod power envelopes.

   a. Does the bounding fuel rod power envelopes depicted in Figure 1 of DG-1199 provide sufficient fuel management flexibility such that current and anticipated fuel loading patterns will be able to utilize the Table 3 fission product gap fractions?

   b. Fission gas release and the resulting fission product gap inventory are sensitive to fuel rod design and rod power history. To maintain consistency with current regulatory guidance, the revised Table 3 remains applicable to all current pressurized water reactor (PWR) and boiling water reactor (BWR) fuel rod designs (limited only by the bounding power envelope). Significant reductions in fission product gap inventories are achievable with specific fuel rod design calculations (e.g., PWR 17x17 versus PWR 14x14) and/or less bounding rod power histories. Should RG 1.183 provide alternate versions of Table 3, each with its own set of applicability criteria?

3. Reference 18 of DG-1199 documents the expanded fission gas release empirical database and methods used to calculate the revised Table 3 and Table 4 fission product

gap inventories. Are any further fission gas measurements available which would help enhance the gap inventories listed in Table 3 and 4?

Comments should mention DG-1199 in the subject line. Comments submitted in writing or in electronic form will be made available to the public in their entirety through the NRC's Agencywide Documents Access and Management System (ADAMS).

Personal information will not be removed from the comments. Comments may be submitted by any of the following methods:

1. Mail comments to: Rulemaking and Directives Branch, Division of Administrative Services, Mail Stop: TWB-05-B01M, Office of Administration, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.
2. Federal e-Rulemaking Portal: Go to http://www.regulations.gov and search for documents filed under Docket ID [NRC-2009-XXXX]. Address questions about NRC dockets to Carol Gallagher, 301-492-3668; e-mail Carol.Gallagher@nrc.gov.
3. Fax comments to: Rulemaking and Directives Branch, Division of Administrative Services, Office of Administration, U.S. Nuclear Regulatory Commission at (301) 492-3446.

Requests for technical information about DG-1199 may be directed to Mark Blumberg at (301) 415-1083 or e-mail to Mark.Blumberg@nrc.gov.

Comments would be most helpful if received by December 11, 2009. Comments received after that date will be considered if it is practical to do so, but the NRC is able to ensure consideration only for comments received on or before this date. Although a time limit is given, comments and suggestions in connection with items for inclusion in guides currently being developed or improvements in all published guides are encouraged at any time.

Electronic copies of DG-1199 are available through the NRC's public Web site under Draft Regulatory Guides in the "Regulatory Guides" collection of the NRC's Electronic Reading

Room at http://www.nrc.gov/reading-rm/doc-collections/. Electronic copies are also available in ADAMS (http://www.nrc.gov/reading-rm/adams.html), under Accession No. ML090960464. In addition, regulatory guides are available for inspection at the NRC's Public Document Room (PDR) located at 11555 Rockville Pike, Rockville, Maryland. The PDR's mailing address is USNRC PDR, Washington, DC 20555-0001. The PDR can also be reached by telephone at (301) 415-4737 or (800) 397-4205, by fax at (301) 415-3548, and by e-mail to pdr.resource@nrc.gov.

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Dated at Rockville, Maryland, this ____ day of _____, 2009.

For the Nuclear Regulatory Commission.

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Regulatory Guide Development Branch,
Division of Engineering,
Office of Nuclear Regulatory Research.