

**NUCLEAR REGULATORY COMMISSION**

**[NRC-2010-0249]**

**Water Sources for Long-Term Recirculation Cooling Following a  
Loss-of-Coolant Accident**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Regulatory guide; issuance.

**SUMMARY:** The U.S. Nuclear Regulatory Commission (NRC or the Commission) is issuing a revision to Regulatory Guide (RG) 1.82, "Water Sources for Long-Term Recirculation Cooling Following a Loss-of-Coolant Accident." RG 1.82 describes methods that the NRC staff considers acceptable to implement requirements regarding the sumps and suppression pools that provide water sources for emergency core cooling, containment heat removal, or containment atmosphere cleanup systems. RG 1.82 provides guidelines for evaluating the adequacy and the availability of the sump or suppression pool for long-term recirculation cooling following a loss-of-coolant accident.

**ADDRESSES:** Please refer to Docket ID NRC-**2010-0249** when contacting the NRC about the availability of information regarding this document. You may access information related to this document, which the NRC possesses and is publicly available, using the following methods:

- **Federal Rulemaking Web site:** Go to <http://www.regulations.gov> and search for Docket ID NRC-2010-0249. Address questions about NRC dockets to Carol Gallagher; telephone: 301-492-3668; e-mail: [Carol.Gallagher@nrc.gov](mailto:Carol.Gallagher@nrc.gov).

- **NRC's Agencywide Documents Access and Management System (ADAMS):**  
You may access publicly available documents online in the NRC Library at <http://www.nrc.gov/reading-rm/adams.html>. To begin the search, select "[ADAMS Public Documents](#)" and then select "[Begin Web-based ADAMS Search](#)." For problems with ADAMS, please contact the NRC's Public Document Room (PDR) reference staff at 1-800-397-4209, 301-415-4737, or by e-mail to [pdr.resource@nrc.gov](mailto:pdr.resource@nrc.gov). Revision 4 of Regulatory Guide 1.82 is available in ADAMS under Accession No. ML111330278. The regulatory analysis may be found in ADAMS under Accession No. ML111330285.

- **NRC's PDR:** You may examine and purchase copies of public documents at the NRC's PDR, Room O1-F21, One White Flint North, 11555 Rockville Pike, Rockville, Maryland 20852.

**FOR FURTHER INFORMATION CONTACT:** John Burke, Mechanical and Electrical Engineering Branch or Richard Jervey, Regulatory Guide Development Branch, Office of Nuclear Regulatory Research, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, telephone (301) 251-7628 and (301) 251-7404 or e-mail: [John.Burke@nrc.gov](mailto:John.Burke@nrc.gov) and [Richard.Jervey@nrc.gov](mailto:Richard.Jervey@nrc.gov).

## **SUPPLEMENTARY INFORMATION:**

### **I. Introduction**

The NRC is issuing a revision to an existing guide in the agency's "Regulatory Guide" series. This series was developed to describe and make available to the public information

such as methods that are acceptable to the NRC staff for implementing specific parts of the agency'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.

Revision 4 of Regulatory Guide (RG) 1.82, "Water Sources for Long-Term Recirculation Cooling Following a Loss-of-Coolant Accident," was issued with a temporary identification as Draft Regulatory Guide, DG-1234. RG 1.82 describes methods that the NRC staff considers acceptable to implement requirements regarding the sumps and suppression pools that provide water sources for emergency core cooling, containment heat removal, or containment atmosphere cleanup systems. RG 1.82 provides guidelines for evaluating the adequacy and the availability of the sump or suppression pool for long-term recirculation cooling following a loss-of-coolant accident.

## **II. Further Information**

DG-1234 was published in the *Federal Register* on July 15 2010, (75 FR 41241) for a 60-day public comment period. The public comment period closed on September 10, 2010. RG. 1.82, was first issued in June 1974. The NRC issued revisions to RG 1.82 in November 1985, May 1996, and November 2003 to incorporate gains in the understanding of containment sump performance, particularly debris blockage on the Emergency Core Cooling System (ECCS) strainers, and provide guidance in determining net positive suction head margin for the ECCS and the containment heat removal system. Since the November 2003 revision, (Revision 3), supplemental information has been accumulated pertaining to ECCS performance accounting for in-plant considerations such as generation of debris and chemical effects associated with the debris circulating in the ECCS systems. Additionally, the NRC issued GL 2008-01, "Managing Gas Accumulation in Emergency Core Cooling, Decay Heat Removal, and

Containment Spray Systems,” in January 2008, to address gas accumulation in safety systems. The NRC obtained significant testing and analysis methodology information relative to pump characteristics affected by fluid voiding and gas transport as a function of system flow conditions which are germane to RG 1.82. This revision of RG 1.82 includes the latest information, and incorporates revised staff regulatory positions reflected in several safety evaluations performed upon ECCS performance testing results since the RG 1.82 Revision 3 was issued. Public comments on DG-1234 and the staff responses to the public comments are available in ADAMS under Accession No. ML111330292.

Dated at Rockville, Maryland, this 16<sup>th</sup> day of March, 2012.

For the Nuclear Regulatory Commission.

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Richard A. Jervy, Acting Chief,  
Regulatory Guide Development Branch,  
Division of Engineering,  
Office of Nuclear Regulatory Research.