

**NUCLEAR REGULATORY COMMISSION**

**[NRC-2015-0048]**

**Compliance With Phase 2 of Order EA-13-109**

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Interim staff guidance; issuance.

**SUMMARY:** The U.S. Nuclear Regulatory Commission (NRC) is issuing its Japan Lessons-Learned Division Interim Staff Guidance (JLD-ISG), JLD-ISG-2015-01, "Compliance with Phase 2 of Order EA-13-109, Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation under Severe Accident Conditions." This ISG provides guidance and clarifies the Phase 2 requirements in the order to assist the licensees that have Boiling Water Reactors (BWRs) with Mark I and Mark II Containments in the design and implementation of either a vent path from the containment drywell or a strategy that makes it unlikely that venting would be needed from the drywell before alternate reliable containment heat removal and pressure control is reestablished. This ISG also endorses, with clarifications, the industry guidance contained in Nuclear Energy Institute (NEI) 13-02, "Industry Guidance for Compliance with Order EA-13-109," Revision 1.

**ADDRESSES:** Please refer to Docket ID **NRC-2015-0048** when contacting the NRC about the availability of information regarding this document. You may obtain publicly-available information related to this document by using any of the following methods:

- **Federal Rulemaking Web site:** Go to <http://www.regulations.gov> and search for Docket ID **NRC-2015-0048**. Address questions about NRC dockets to Carol Gallagher; telephone: 301-415-3463; e-mail: [Carol.Gallagher@nrc.gov](mailto:Carol.Gallagher@nrc.gov). For technical questions, contact the individual listed in the FOR FURTHER INFORMATION CONTACT section of this document.

- **NRC’s Agencywide Documents Access and Management System (ADAMS):** You may obtain publicly-available documents online in the ADAMS Public Documents collection 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). The ADAMS accession number for each document referenced (if it available in ADAMS) is provided the first time that a document is referenced. The JLD-ISG-2015-01 is available in ADAMS under Accession No. ML15104A118. The ISG for complying with Phase 1 requirements of the order (JLD-ISG-2013-02) was issued on November 14, 2013 (ADAMS Accession No. ML13304B836). The NEI 13-02, Revision 1 is available in ADAMS under Accession No. ML15113B318.

- **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.

- **NRC’s Interim Staff Guidance Web site:** JLD-ISG documents are also available online under the “Japan Lessons Learned” heading at <http://www.nrc.gov/reading-rm/doc-collections/isg/japan-lessons-learned.html>.

**FOR FURTHER INFORMATION CONTACT:** Rajender Auluck, Office of Nuclear Reactor Regulation, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; telephone: 301-415-1025; e-mail: [Rajender.Auluck@nrc.gov](mailto:Rajender.Auluck@nrc.gov).

## **SUPPLEMENTARY INFORMATION:**

The NRC developed JLD-ISG-2015-01 to provide guidance and clarification to assist nuclear power reactor licensees with the identification of methods needed to comply with Phase 2 requirements in Order EA-13-109 (ADAMS Accession No. ML13130A067), “Order Modifying Licenses with Regard to Reliable Hardened Containment Vents Capable of Operation under Severe Accident Conditions.” This ISG is not a substitute for the requirements in Order EA-13-109, and compliance with the ISG would not be a requirement.

The accident at the Fukushima Dai-ichi nuclear power station reinforced the importance of reliable operation of containment vents for BWR plants with Mark I and Mark II containments. As part of its response to the lessons learned from the accident, on March 12, 2012, the NRC issued Order EA-12-050 (ADAMS Accession No. ML12056A043) requiring licensees to upgrade or install a reliable hardened containment venting system (HCVS) for Mark I and Mark II containments. While developing the requirements for Order EA-12-050, the NRC acknowledged that questions remained about maintaining containment integrity and limiting the release of radioactive materials if licensees used the venting systems during severe accident conditions.

The NRC staff on November 26, 2012, presented the Commission with options to address these issues in SECY-12-0157, “Consideration of Additional Requirements for Containment Venting Systems for Boiling Water Reactors with Mark I and Mark II Containments” (ADAMS Accession No. ML12325A704). In the staff requirements memorandum (SRM) for SECY-12-0157, dated March 19, 2013 (ADAMS Accession No. ML13078A017), the Commission directed the staff to: (1) issue a modification to Order EA-12-050 requiring BWR licensees with Mark I and Mark II containments to upgrade or replace the reliable hardened vents required by Order EA-12-050 with a containment venting system designed and installed to

remain functional during severe accident conditions, and (2) develop a technical basis and rulemaking for filtering strategies with drywell filtration and severe accident management of BWR Mark I and II containments. The NRC subsequently issued Order EA-13-109 to define requirements and schedules for licensees for BWRs with Mark I and Mark II containments to install severe accident capable containment venting systems.

In recognition of the relative importance of venting capabilities from the wetwell and drywell, a phased approach to implementation is being used to minimize delays in implementing the requirements originally imposed by Order EA-12-050. Phase 1 involves upgrading the venting capabilities from the containment wetwell to provide reliable, severe accident capable hardened vents to assist in preventing core damage and, if necessary, to provide venting capability during severe accident conditions. Phase 2 involves providing additional protection during severe accident conditions through installation of a reliable, severe accident capable drywell vent system or the development of a reliable containment venting strategy that makes it unlikely that a licensee would need to vent from the containment drywell during severe accident conditions. For implementation of Phase 1 order requirements, the NRC issued JLD-ISG-2013-02 on November 14, 2013 (78 FR 70356), which endorsed, with exceptions and clarifications, the methodologies described in the industry guidance document NEI 13-02, Rev. 0, "Industry Guidance for Compliance with Order EA-13-109" (ADAMS Accession No. ML13316A853). As required by the order, licensees submitted their site-specific overall integrated plans (OIPs) by June 30, 2014. The NRC staff has completed its review of the OIPs and has issued interim staff evaluations.

On March 10, 2015, the NRC staff issued a *Federal Register* notice (80 FR 12649) to request public comments on draft JLD-ISG-2015-01 (ADAMS Accession No. ML15051A143). In response, the NRC received comments from SimplyInfo by letter dated March 11, 2015 (ADAMS Accession No. ML15083A277), and the NEI by letter dated April 9, 2015 (ADAMS

Accession No. ML15104A316). Several of these comments have been previously submitted to the NRC for staff's consideration. The resolution of these comments has been documented and publicly available (ADAMS Accession No. ML15114A051).

The focus of this ISG is to provide guidance for implementing Phase 2 requirements of the order. The Phase 2 portion of Order EA-13-109 builds on the Phase 1 activities, and is intended to be consistent with the expected outcome of the development of a regulatory basis for the Containment Protection and Release Reduction (CPRR) rulemaking. Specifically, the industry described a containment venting approach that includes severe accident water addition (SAWA) and severe accident water management (SAWM) strategies that would preserve the use of a wetwell vent path, in addition to providing other benefits. Evaluations performed in support of the CPRR rulemaking confirmed significant benefits to including SAWA as part of a severe accident management strategy. Therefore, SAWA will facilitate implementation of Phase 2 of Order EA-13-109 by establishing the design conditions for a drywell vent and supporting SAWM for licensees choosing to pursue that option as a strategy that makes it unlikely that a licensee would need to vent from the drywell.

On April 23, 2015, NEI submitted NEI 13-02, "Industry Guidance for Compliance with Order EA-13-109," Rev. 1 (ADAMS Accession No. ML15113B318) to assist nuclear power licensees with the identification of measures needed to comply with the Phase 2 requirements of Order EA-13-109 regarding reliable hardened containment vents capable of operation under severe accident conditions. The NEI document includes guidance for implementing order requirements for both Phase 1 and Phase 2, including the industry's proposed approach to use

the SAWA and SAWM strategies to control the water levels in the suppression pool and maintain capabilities to address over-pressure conditions without a severe accident drywell vent. This ISG endorses, with clarifications, the methodologies described in the industry guidance document NEI 13-02, Revision 1.

Dated at Rockville, Maryland, this 29<sup>th</sup> day of April 2015.

For the Nuclear Regulatory Commission.

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Jack R. Davis, Director,  
Japan Lessons-Learned Division,  
Office of Nuclear Reactor Regulation.

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Dated at Rockville, Maryland, this 29<sup>th</sup> day of April 2015.

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**ADAMS Accession No.: ML15111A492**

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