**[7590-01-P]**

**NUCLEAR REGULATORY COMMISSION**

**[NRC-2015-0044]**

# Guidance for Evaluation of Acute Chemical Exposures and Proposed Quantitative Standards

**AGENCY:** Nuclear Regulatory Commission.

**ACTION:** Draft interim staff guidance; supplemental information; extension of comment period.

**SUMMARY:** The U.S. Nuclear Regulatory Commission (NRC) is providing supplemental information to an earlier notice, appearing in the *Federal Register* on March 4, 2015, which requested comment on a draft interim staff guidance (ISG), "Guidance for Evaluation of Acute Chemical Exposures and Proposed Quantitative Standards." The draft ISG, if issued in final form, would supplement existing guidance in NUREG–1520, "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility," by providing additional guidance and the descriptions of proposed quantitative standards for the NRC to follow when evaluating the integrated safety analysis (ISAs) of acute chemical exposures. This action is necessary to provide the public with the backfitting information with respect to the draft ISG, and includes references to the key documents on backfitting issues. The public comment period was originally scheduled to close on May 18, 2015. The NRC is extending the public comment period on this action to allow more time for members of the public to review the additional information on backfitting before submitting any comments.

**DATES:** The due date of comments requested in the document published on March 4, 2015 (80 FR 11692) is extended. Comments should be filed no later than **[INSERT DATE 75 DAYS DAYS FROM DATE OF PUBLICATION IN THE *FEDERAL REGISTER*]**. Comments received after this date will be considered if it is practical to do so, but the Commission is able to ensure consideration only for comments received before this date.

**ADDRESSES:** You may submit comments by any of the following methods (unless this document describes a different method for submitting comments on a specific subject):

- **Federal Rulemaking Web Site:** Go to http://www.regulations.gov and search for Docket ID NRC-2015-0044. Address questions about NRC dockets to Carol Gallagher; telephone: 301-415-3463; e-mail: Carol.Gallagher@nrc.gov. For technical questions, contact the individual listed in the FOR FURTHER INFORMATION CONTACT section of this document.
- **Mail comments to:** Cindy Bladey, Office of Administration, Mail Stop: OWFN-12-H08, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001.

For additional direction on accessing information and submitting comments, see "Obtaining Information and Submitting Comments" in the SUPPLEMENTARY INFORMATION section of this document.

**FOR FURTHER INFORMATION CONTACT:** Marilyn Diaz, Office of Nuclear Material Safety and Safeguards, U.S. Nuclear Regulatory Commission, Washington DC 20555-0001; telephone: 301-415-7110, e-mail: Marilyn.Diaz@nrc.gov.

**SUPPLEMENTARY INFORMATION:**

## I. Obtaining Information and Submitting Comments.

A. Obtaining Information.

Please refer to Docket ID NRC-2015-0044 when contacting the NRC about the availability of information for this action. You may obtain publicly-available information related to this action by any of the following methods:

- **Federal Rulemaking Web Site:** Go to http://www.regulations.gov and search for Docket ID NRC-2015-0044.

- **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. The draft ISG is available in ADAMS under Accession No. ML15051A029.

- **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.

B. Submitting Comments.

Please include Docket ID NRC-2015-0044 in the subject line of your comment submission, in order to ensure that the NRC is able to make your comment submission available to the public in this docket.

The NRC cautions you not to include identifying or contact information that you do not want to be publicly disclosed in your comment submission. The NRC posts all comment

submissions at http://www.regulations.gov as well as entering the comment submissions into ADAMS. The NRC does not routinely edit comment submissions to remove identifying or contact information.

If you are requesting or aggregating comments from other persons for submission to the NRC, then you should inform those persons not to include identifying or contact information that they do not want to be publicly disclosed in their comment submission. Your request should state that the NRC does not routinely edit comment submissions to remove such information before making the comment submissions available to the public or entering the comment submissions into ADAMS.

## II. Background.

The NRC is providing supplemental information to a notice requesting comment on its draft ISG, "Guidance for Evaluation of Acute Chemical Exposures and Proposed Quantitative Standards," that was published in the *Federal Register* (80 FR 11692; March 4, 2015). The draft ISG, if issued in final form, would supplement existing guidance in NUREG–1520, "Standard Review Plan for the Review of a License Application for a Fuel Cycle Facility" (ADAMS Accession No. ML101390110), by providing additional guidance for the NRC to follow when evaluating the ISAs of acute chemical exposures, including the descriptions of proposed quantitative standards used to classify exposure events using the general criteria of section 70.61 of title 10 of the *Code of Federal Regulations* (10 CFR). The draft ISG identifies sources of information that the staff could use when reviewing the proposed quantitative standards.

This supplemental information provides the NRC's proposed position on backfitting with respect to the draft ISG, and includes references to the key documents on backfitting. The public comment period was originally scheduled to close on May 18, 2015. The NRC has decided to extend the public comment period on the draft ISG to allow more time for members of the public to review the supplemental information before submitting any comments.

## III. Supplemental Information.

The NRC believes that the draft ISG, if issued in final form, would not constitute backfitting as defined in 10 CFR 70.76(a)(1). All fuel cycle facility licensees are required to conduct and maintain an ISA that analyzes the chemical hazards of licensed material. The performance requirements in 10 CFR 70.61(b) and (c) require that the risk of each credible high or intermediate consequence event be limited, and such events include those arising from an acute chemical exposure as specified in 10 CFR 70.61(b)(4) and (c)(4). For all credible event consequences as specified in 10 CFR 70.61(b)(4) and (c)(4), the ISA summary must describe the proposed quantitative standards used to address acute chemical exposures from credible event sequences in accordance with 10 CFR 70.65(b)(7). This requirement is reinforced by the ISA definition in 10 CFR 70.4. Subpart H of 10 CFR part 70 contains performance-based requirements under which the applicant/licensee must address all credible hazards, and there is no regulatory language limiting consideration of chemical hazards to specific exposure pathways. The draft ISG is consistent with the regulatory language in subpart H of 10 CFR part 70 and the NRC's position that the ISA should consider all acute chemical exposures, including dermal and ocular exposures.

Since the initial NRC approval of ISA summaries, there have been a number of hazardous chemical exposure incidents involving dermal and ocular exposures at fuel cycle facilities. Two of these incidents of exposure have resulted in intermediate or high consequences. See Table 1, Fuel Cycle Facility Dermal and Ocular Exposure Events Known to the NRC Staff. The NRC believes that these events demonstrate the need for fuel cycle facilities to address all exposure pathways when updating their safety programs, ISAs, and ISA summaries. The information contained in the draft ISG reflects and reiterates existing NRC regulatory requirements for the fuel cycle facility licensees who will be subject to the draft ISG. Therefore, issuance of the draft ISG in final form would not constitute backfitting. The NRC's positions on backfitting with respect to consideration of all exposure pathways (the subject of this

draft ISG) are set forth in a September 15, 2014, letter to the Nuclear Energy Institute (NEI) (ADAMS Accession No. ML14251A150; Enclosure: ADAMS Accession No. ML14251A149). The NRC's September 2014 letter responds to a March 26, 2014, letter from NEI to the NRC (ADAMS Accession No. ML14086A267), which raises backfitting issues with respect to consideration of dermal and ocular exposures to hazardous chemicals at NRC-regulated fuel cycle facilities. The NEI also provided their views on backfitting with respect to consideration of dermal and ocular exposures to hazardous chemicals at NRC-regulated fuel cycle facilities in a November 7, 2014, letter to the General Counsel of the NRC (ADAMS Accession No. ML14322B019).

Table 1. Fuel Cycle Facility Dermal and Ocular Exposure Events Known to the NRC Staff[1]

*(events in shaded are of intermediate or high consequence)*

| | **Date** | **Event Description (drawn from NMED text)** |
|---|---|---|
| 1. | 12/3/1992 | Employee sprayed with an acid/uranium mixture |
| 2. | 1/27/1998 | $UF_6$ release, three workers received minor HF acid burns on necks and arms (NRC Event Notification (EN) 33601) |
| 3. | 8/10/2001 | $UF_6$ release, two workers treated for HF acid burns (EN38198) |
| 4. | 4/4/2006 | $UF_6$ release, "minor reddening of the skin … as an apparent result of HF exposure" (NRC Press Release [ADAMS Accession No. ML061170441] |

[1] Table 1 presents all events involving chemical exposures at fuel cycle facilities known to the NRC staff based upon staff review of the Nuclear Medical Events Database (NMED). There may be additional events not included in this Table. This Table includes some chemical exposure events which were not classified as intermediate or high consequence, because small changes in scenario (*e.g*., location of the worker relative to the spill/release, magnitude of the spill/release, how fast a worker can exit an area, timeliness and nature of first aid) can change the classification of the severity of an event (classified in accordance with the 10 CFR 70.61 criteria).

| | Date | Event Description (drawn from NMED text) |
|---|---|---|
| 5. | 2/26/2007 | $UF_6$ release, worker received chemical burn while working with $UF_6$ cylinder. (NRC Inspection Report 70-1151/2007-022; ADAMS Accession No. ML071980047)[2] |
| 6. | 4/28/2008 | HF spill, the spill resulted in an operator receiving an ocular exposure requiring onsite and offsite emergency medical treatment. (EA-08-204; ADAMS Accession No. ML082960026; IR 70-27/2008-0287) |
| 7. | 2/12/2009 | Holes in glove resulted in second degree nitric acid burns (EN44848) |
| 8. | 4/5/2011 | KOH exposure on both facial cheeks (EN46730) |
| 9. | 4/13/2011 | Residual HF passed through zipper of chemical resistant suite and onto the skin of abdomen (EN46749) |
| 10. | 4/28/2011 | Chemical exposure on ring finger, treated for weak HF or caustic exposure (EN46799) |
| 11. | 4/30/2011 | Loose HF tubing allowed HF to spray into the atmosphere. Employee noticed redness around his right eye (EN46806) |

[2] This event may be classified as intermediate or high consequence, and was the subject of NRC Information Notice (IN) 2007-022 (ADAMS Accession No. ML071410230). Another chemical exposure event was identified in IN 2007-022, but is not included in this Table because the event involved an inhalation exposure.

| | Date | Event Description (drawn from NMED text) |
|---|---|---|
| 12. | 6/1/2011 | Irritation to the eye occurred while cleaning out an HF filter bowl (EN46915) |
| 13. | 4/23/2012 | Exposure to dilute nitric acid on left forearm and left foot from exposure to uranium bearing acid (EN47861) |
| 14. | 10/14/2013 | HF exposure to an employee's face (EN49437) |

Dated at Rockville, Maryland, this 9th day of April, 2015.

For the Nuclear Regulatory Commission.

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