

**Response to Public Comments on Draft Regulatory Guide DG-1274
 “Design, Inspection, and Testing Criteria for Air Filtration and
 Adsorption Units of Post-Accident Engineered-Safety-Feature
 Atmosphere Cleanup Systems in Light-Water-Cooled
 Nuclear Power Plants”**

Proposed Revision 4 of Regulatory Guide (RG) 1.52

A notice that Draft Regulatory Guide, DG-1274 (Proposed Revision 4 of RG 1.52) was available for public comment and issued in the *Federal Register* on December 30, 2011 (76 FR 82323). The public comment period ended February 25, 2012. The U.S. Nuclear Regulatory Commission (NRC) received comments from the organizations listed below. The NRC staff has combined the comments, which are in the following table.

Comments were received from the following:

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Item	Originator	Section of DG-1274	Specific Comments	NRC Resolution
1	NUCON	Last two sentences of last paragraph (page 4)	We do not recommend removal of the post filters. This will change the unit DP [differential pressure] and therefore affect system flow rate. If filters are removed [then] a second airflow should be performed. If post filters are to be removed it must be emphasized that all post filters must be	Comment accepted. The last two sentences of the last paragraph on page 4, (Paragraph starting with the words “Prefilters and HEPA filters...” will be deleted. This clarifies that removal of post filters for testing is not preferable due to the adverse effect of changing the differential pressure in the system, and that the system should be designed such that the removal of components to facilitate testing is not necessary.

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			removed. Removal of only part of the bank [may] allow some of the test aerosol that may bypass the upstream bank to be partially filtered by the post filters and give non-conservative test results. It is recommended that a sampling manifold be used.	
2	NUCON	C.3.f (page 9)	Remove this part “ <i>To ensure reliable in-place testing</i> ” of the sentence. Reliable in-place test results [are] not dependent on airflow but [are] a function of how the test is set up. However, the system should be operating at design airflow + -10%.	<p>Comment accepted: Removed the first clause “<i>To ensure reliable in-place testing</i>” from C.3.f. The staff agrees that reliable in-place testing is not dependent on airflow. The purpose of this guidance is as stated in DOE-HDBK 1169-2003, “Nuclear Air Cleaning Handbook”, (Ref. 18), paragraph 4.4.11, “Size of Banks”. “The purpose of this requirement was to facilitate maintenance and in-place testing, to improve control in the event of a system upset, and to enhance the reliability of the total system.” Therefore the staff agrees that the guidance is not related to testing reliability per se.</p> <p>This change does not impact the intent of following the guidance of U.S. Department of Energy (DOE) document DOE-HDBK 1169-2003, “Nuclear Air Cleaning Handbook” (Ref. 18), paragraph 4.4.11, “Size of Banks.”</p>
3	NUCON	C.4.d (page 10)	I would include section FK so as to allow special filters. It should be up to the A&E as to what type of filter design to be used.	<p>Comment not accepted. Public comment provided neither an industry operating experience basis nor an adequate technical justification as to why section FK should be endorsed by the staff for engineered-safety feature (ESF) filtration systems. There are some advantages to using round high-efficiency particulate air (HEPA) filters as captured by the white paper presented at the 25th DOE/NRC Nuclear Air Cleaning and Treatment Conference entitled “Circular HEPA Filters for Use in Nuclear Containment and Ventilation Systems.”</p> <p>http://www.hss.doe.gov/nuclearsafety/qa/hepa/nureg_25th/filter6.pdf</p> <p>DOE laboratories are more apt, than nuclear power plant operators to</p>

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				<p>have the need for using special round and duct-connected HEPA filters in non- ESF applications. Current nuclear plant operators under Title 10 of the <i>Code of Federal Regulations</i> (10 CFR) Part 50 (Ref. 1) and design certification document and combined operating license applicants under the 10 CFR Part 52(Ref. 2) licensing process may choose to specify special round and duct-connected HEPA filters for their plants in ESF filtration systems but would have to take exception to the guidance of RG 1.52, in which case, the staff would evaluate the exception on a case-by-case basis.</p>
4	NUCON	Table 2 Last two sentences of footnote “b” (page 18)	<p>This sentence is hard to understand. Maybe reword to this: “When two or more beds are used in a series, it may be advantageous to locate these beds in separate housings. This may aid in the mixing of the challenge agent and contribute to the overall accuracy of the test. This does not preclude the use of test manifolds. Each bank shall be individually in-place leak tested.”</p>	<p>Comment accepted. The staff agrees that Table 2 footnote b is hard to read. In order to improve readability, the staff replaced the last two sentences of footnote “b” with the words:</p> <p><i>“When two or more beds are used in series, it may be advantageous to locate these beds in separate housings. This may aid in the mixing of the challenge agent and contribute to the overall accuracy of the test. This does not preclude the use of test manifolds. Each bank shall be individually in-place leak tested.”</i></p>
5	NUCON	Table 2, Note (2) (page 18)	Misspelled, should be “adsorbed.”	<p>Comment accepted. The staff agrees that the correct word is adsorbed because activated carbon functions via the process of adsorption not absorption, and makes the note consistent with the rest of the RG in that regard. The misspelled word “<i>absorbed</i>” was corrected to “<i>adsorbed</i>” in Note (2)</p>
6	Sargent & Lundy LLC (S&L)	Figure 1 (page 6)	Add post filter or HEPA to Figure 1.	<p>Comment not accepted. Figure 1 already displays a HEPA filter after the “Adsorber” section of the filter train. The figure is also annotated that “other acceptable configurations exist; this figure is only provided for conceptual purposes.” The last full paragraph on page 4 indicates that HEPA filters or postfilters downstream of the adsorber section are permitted. Therefore, to modify the figure with additional guidance is unnecessary.</p>
7	S&L	Figure 2 (page 7)	Add post filter or HEPA to Figure 2.	<p>Comment not accepted. Figure 2 already displays a HEPA filter after the “Adsorber” section of the filter train. The figure is also</p>

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				annotated that “other acceptable configurations exist; this figure is only provided for conceptual purposes.” The last full paragraph on page 4 indicates that HEPA filters or postfilters downstream of the adsorber section are permitted. Therefore, to modify the figure with additional guidance is unnecessary.
8	S&L	C.1(page 7)	Add “for design of test canisters only” after (Ref. 11) in first sentence of C.1.	Comment not accepted. Based on the staff’s response to the reviewer’s comment (immediately below) for C.2.a (page 7), to add “for design of test canisters only” would make C.1 inconsistent with what follows.
9	S&L	C.2.a (page 7)	Delete “in accordance with Section 4.4 of ASME N509-2002” (Ref. 11) in first sentence of C.2.a.	Comment not accepted. Section 4.4 of ASME N509-2002 provides the basis for the criteria established in C.2.a. In addition, section 4.4 points to other industry guidance documents to consider when establishing the environmental qualification requirements for the components of the air-cleaning unit. Staff understands that ASME N509-2002 will be “sunset” by the ASME CONAGT in the not too distant future after the ASME AG-1 Code and ASME N511 completely replaces the guidance of N509.
10	S&L	C.3 (page 8)	Add “for design of test canisters only” after (Ref. 11) in the first sentence of C.3.	Comment not accepted. Based on the staff’s response to the reviewer’s comment (immediately above) for C.2.a (page 7), to add “for design of test canisters only” would make C.3 inconsistent with other passages of the regulatory guide.
11	S&L	C.3.f (page 9)	C.3.f addresses filter layout for walk-in units. Add recommended filter layout for bag-in/bag-out type units.	Comment not accepted. The regulatory guide does not preclude the use of a bag-in/bag-out type filter. Alternate arrangements may be permitted if an adequate technical justification is provided to the staff. In this particular case, section 4, “Component Design Criteria and Qualification Testing,” 4.f and 4.g endorses the use of section HA of ASME AG-1-2009 with addenda. Figure HA-1120-2 provides the details of a bag-out housing. Therefore, additional words are not warranted in section C.3.f.
12	S&L	C.3.g (page 9)	Delete “and Section 4.9 of ASME N509-2002 (Ref. 11)” from C.3.g.	Comment accepted. Section 4.9, “Monitoring of Operational Variables,” reads: “ <i>Instruments and Controls shall meet the requirements of ASME AG-1, Section IA.</i> ” Therefore, the clause “...and Section 4.9 of ASME N509-2002 (Ref. 11)” is redundant

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				with the clause that immediately precedes it. Changed C.3.g to read: <i>“The ESF atmosphere cleanup system should be instrumented to signal, alarm, and record pertinent pressure drops and flow rates at the control room in accordance with the recommendations of Section IA of ASME AG-1-2009 with addenda (Ref. 13). Instrumentation, readout, recording, and alarm provisions for ESF atmosphere cleanup systems should meet the guidance given in Table 1 of this regulatory guide as a minimum.”</i>
13	S&L	C.3 g (page 9)	Table 1 of this guide is not consistent with Non-Mandatory Appendix Table 1A-C1000. Suggest deleting Table 1 from this guide.	Comment not accepted. The reasons for adding Table 1 to the RG were carefully considered by the staff during DG-1274’s development. The intent was to restore guidance that was absent in AG-1 and later revisions of ASME N509 but found in the current revision of NUREG-0800, SRP 6.5.1.
14	S&L	C.3.j (page 10)	Page 10, [c]larify replacement of segmented sections as ultimately the entire filter unit would be replaced.	Accepted comment since filter trains are normally constructed as a welded unit. Segmented sections would suggest bolted flange and gasket connections, which are not found in industry. Removed the last clause of the last sentence <i>“or a minimum number of segmented sections without removal of individual components.”</i>
15	S&L	C.3.1 (page 10)	Also refer to section HA-4500	Comment accepted. The staff inserted a reference to section HA-4500 in C.3.1 because this section is the applicable section in the industry standard for housing, whereas SA-4500 applies to ductwork.
16	S&L	C4.i (page 11)	Suggest relocating humidity control discussion to heater section C.4.b.	Suggested change not accepted. The opening paragraph of C.4.i reads: <i>“Adsorption units function most efficiently for the removal of radioiodine, particularly organic iodides, at an input relative humidity of 70 percent or less.”</i> The second paragraph (which the reviewer suggests relocating) is a continuation and further explanation of the opening paragraph. Therefore, the staff believes that the placement of the words of C.4.i should remain largely unchanged from the words contained in section 4.9 of RG 1.52 Revision 3.
17	S&L	C.4.j (page 12)	Are the manual fire systems safety-related or nonsafety related?	No change required. Fire protection systems, in general, are not safety related and have no technical specifications.

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18	S&L	C.4.m (page 13)	Add “section 4.13.b and” before Appendix I.	Comment accepted. It appears that the comment was directed at the last sentence of C.4.k (not C.4.m), since this RG paragraph matches the reference in the comment. To change this typographical error, the staff changed section C.4.k to read, “ <i>If sample canisters are used, they should be designed in accordance with section 4.13(b) and Appendix I to ASME N509-2002 (Ref. 11).</i> ”
19	S&L	C.6.c (page 14)	Replace “of” with “and” in third line.	Comment accepted; changed C.6.c accordingly to correct typographical error.
20	S&L	C.6.f (page 15)	Replace “of” with “and” in second line.	Accepted comment; changed C.6.f accordingly to correct typographical error.

Pre-Decisions