

**Response to Public Comments on Draft Regulatory Guide (DG)-1280  
 “Design, Inspection, and Testing Criteria for Air Filtration and Adsorption Units of Normal  
 Atmosphere Cleanup Systems in Light-Water-cooled Nuclear Power Plants”  
 Proposed Revision 3 of Regulatory Guide (RG) 1.140**

On June 29, 2012, the NRC published a notice in the *Federal Register* (77 FR 38857) that Draft Regulatory Guide, DG-1280 (Proposed Revision 3 of RG 1.140) was available for public comment. The public comment period ended August 27, 2012. The NRC received comments from the organizations listed below. The NRC has combined the comments and NRC staff disposition in the following table.

Comments were received from the following:

Patricia Campbell  
 GE Hitachi Nuclear Energy  
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 ADAMS Accession No. ML12237A136

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 NCS Corporation  
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 Almaraz-Trillo NPP –Engineering and  
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Commenter	Section of DG-1280	Specific Comments	NRC Resolution
GE Hitachi Nuclear Energy	Page 2, 1st paragraph, 2nd sentence “...as reasonably demonstrated technology...”	The referenced sentence does not make sense. Suggest retaining original sentence:  “Appendix I also requires that additional radwaste equipment be provided if the equipment has reasonably demonstrated technology ...”	The staff agrees in part with the comment. The sentence can be confusing as written. The sentence was rewritten and reads as follow:  “...Appendix I requires that additional radwaste equipment of reasonably demonstrated technology be installed if results in a reduction of pollution doses withing a 50-mile...”

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GE Hitachi Nuclear Energy	Page 2, 1st paragraph, last sentence.	<p>Extraneous words appear to be unnecessary. Suggest revise wording as below:</p> <p>“The requirements of this paragraph D need not be complied with by persons who have filed applications for construction permits which were docketed on or after January 2, 1971, and prior to June 4, 1976, if the radwaste systems and equipment described in the preliminary or final safety analysis report and amendments satisfy the Guides on Design Objectives for Light- Water-Cooled Nuclear Power Reactors proposed in the Concluding Statement of Position of the Regulatory Staff in Docket-RM-50-2 dated February 20, 1974, pp. 25-30, reproduced in the Annex to this Appendix I.”</p>	The staff agrees with the comment. The words “there to” were deleted.
GE Hitachi Nuclear Energy	Page 2, 5th paragraph, 5th sentence, and Reference 6.	<p>IAEA Safety Standard SG NS-R-1, “Safety of Nuclear Power Plants: Design,” has been superseded by IAEA Safety Standard SSR-2/1, “Safety of Nuclear Power Plants: Design,” January 2012.</p> <p>Change the sentence and Reference 6 to SSR-2/1. See the links below for verification:  <a href="http://www-pub.iaea.org/MTCDC/publications/PDF/Pub1099_scr.pdf">http://www-pub.iaea.org/MTCDC/publications/PDF/Pub1099_scr.pdf</a>  <a href="http://www-pub.iaea.org/MTCDC/publications/PDF/Pub1534_web.pdf">http://www-pub.iaea.org/MTCDC/publications/PDF/Pub1534_web.pdf</a></p>	The staff agrees with the comment. The IAEA Safety Standard SG-NS-R-1 was superseded by IAEA Safety Standard SSR-2/1. The regulatory guide was changed to reference IAEA Safety Standard SSR-2/1, “Safety of Nuclear Power Plants: Design.”
GE Hitachi Nuclear Energy	Page 3, 6th paragraph, last sentence.	This paragraph discusses that cleanup systems are also used to treat process streams from power cycle waste offgas Systems. It states: “The ASME Committee on Nuclear Air and Gas Treatment (CONAGT) has indicated their intention for future editions of the ASME AG-1 code to detail requirements for power cycle waste offgas systems. Staff positions now include power cycle waste	The staff disagrees with the comment. Staff has established a regulatory position, and does not need to wait for the code to be updated. The staff has deleted the sentence: “Staff positions now include power cycle waste offgas systems in anticipation that future revisions of this guide will address the ADME AG-1 code,” to avoid confusion.

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		<p>offgas systems in anticipation that future revisions of this guide will address the ASME AG-1 code.” However, AG-1 does not currently include offgas systems within its scope. Regulatory guidance should not be based on actions that have not yet been completed.</p> <p>The final Regulatory Guide should be revised to remove staff positions based on expected future action of a Code Committee until such actions are completed. Sections that should be deleted or modified are: C.2.d, C.3.g, C.4.n, C.5.d, C.6.h, C.7.e, and Table 1 Notes (Note (5)).</p>	
GE Hitachi Nuclear Energy	Page 10, 7.c, 1st sentence.	<p>There appears to be a significant change in the sampling and analysis intervals for laboratory testing of activated carbon adsorber section samples for systems that operate continuously. In pertinent part, RG 1.140, Rev. 2 (current guidance), indicates that sampling and analysis should be performed at intervals of approximately 24 months. DG-1280 refers to frequency intervals in Sections 7 and 5.9 of ASME N511-2007 to replace the current guidance. ASME N511-2007, Section 5.9, evokes a 720-run-hour interval requirement for laboratory testing of adsorbent, compared to the current guidance of approximately every 24 months. Even with redundant filter trains, this is an increase of approximately 6 times the test frequency as with the current guidance in RG 1.140, Rev. 2. While this frequency may arguably be reasonable for systems/train applications that do not operator continuously, it does not appear reasonable for on-line filter trains that operate continuously.</p> <p>The NRC should consider whether such a significant increase in laboratory testing is warranted for those systems that operate continuously. The NRC should</p>	<p>The staff disagrees with this comment. Regulatory position 7 addresses laboratory testing criteria for <u>activated</u> carbon, which is carbon treated for enhanced radioiodine retention where design credits this enhanced capability. N511-2007 Section 5.9.1 has a “Note” associated with the “every 24 months or 720 hours of accumulated service time” frequency requirement that allows for extension of the interval based on test results. Thus the guidance allows licensees to take the initiative to adjust the test interval on a performance basis.</p>

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		consider retaining a 24-month interval for systems that operate continuously.	
NCS Corporation	Page 10, Section 7.d	<p>Preserving the sampled adsorbent’s depletion profile during radioiodine testing most closely replicates the actual conditions of the main bed. Preserving this profile requires that system test canisters be tested undisturbed in the laboratory test apparatus. The utilization of a variety of manufacturer’s test canisters directly in the laboratory test apparatus introduces uncontrolled variables into ASTM D-3803-1989. Furthermore, much of current industry sampling does not rely on sample canisters, but other methods that do not preserve the carbon bed depletion profile. The question arises as to how the measured radioiodine efficiencies for the same carbon compare when tested in the in-situ, inlet-to-outlet configuration (undisturbed in the test canister) and when homogenized (current practice). There are likely to be differences in test results obtained by each of these methods.</p> <p>Eliminate the statement: “Laboratory tests of representative samples of adsorbent should be conducted as indicated in Table 1 of this guide, with the test gas flow in the same direction as normal cleanup system flow.”</p> <p>The statement is not applicable to bulk-samples adsorbent, and when applied to canister sampling introduces uncontrolled variables into ASTM D-3803-1989. Maintaining the procedural controls ASTM D-3803-1989 assures that all samples of adsorbent are tested in exactly the same manner, providing results that are accurate, repeatable and comparable. If significant differences are identified between testing adsorbent with</p>	<p>The staff agrees that the wording should be more specific and accommodating of deep bed adsorbers. The wording will be changed to “Laboratory tests of representative samples of adsorbent should be conducted as indicated in Table 1 of this guide, with the test gas flow in the same direction as normal cleanup system flow unless using bulk sample extraction methods from deep bed adsorbers.”</p>

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		the depletion profile preserved, and a homogenized sample, it may be preferable to accommodate these differences in a manner other than the introduction of uncontrolled variables into ASTM-D-3803-1989.	
NCS Corporation	Page 11, Table 1	<p>Table 1, "Inservice Adsorber Laboratory Tests for Activated Carbon," assigns decontamination efficiencies for elemental and organic iodide to activated carbon used in delay tanks or beds. Note (5) applicable to the table states: "For power cycle offgas systems relying on activated carbon delay tanks or beds...design capacity and number of delay tanks or beds."</p> <p>Typically, carbon manufactured for use in off-gas delay systems is not designed for, and not suitable for radioiodine removal. If the intent is to provide additional protection with a separate bed unrelated to the typical delay function of off-gas carbon, this should be clarified.</p>	The staff disagrees that additional clarification is needed. Starting in Section C.2.d a qualification is stated limiting the adsorber guidance to those applications where <u>activated</u> charcoal was being relied on. Charcoal may be present in beds/tanks for its enhanced delay benefit over an equivalent volume of empty pipe or tank for decay of airborne radioactivity. This qualification of or limitation to the guidance applicability is restated more than once. Table 1 identifies tests associated with activated carbon. If radioiodine removal by adsorption is not a design objective the carbon is not activated or not credited as such and its other characteristics for delay or mechanical capture of airborne radioactivity are relied on. If the latter is the case, then the carbon is not considered activated and the Table 1 tests are not applicable.
David Ramirez Garcia	General	The existing non-ESF filtration units in Almaraz NPP were designed and implemented in the 70'-80's. The currently normal disposition inside the filtration units in Almaraz NPP is: prefilter + iodine adsorber + HEPA filter. Almaraz staff believe that the existing filtration units could meet the requirements of RG 1.140 Rev. 2 by changing the current prefilter by another with high efficiency (up to 90%-95%, size particles: 0.3µm) and maintaining the current disposition of the iodine adsorber and the HEPA filter after the adsorber. The efficiency of the proposed filtration unit (with three filters) is better than the efficiency of the minimum disposition	Questions on how the Regulatory Guide guidance would be applicable to or acceptably implemented in a particular system in a particular reactor facility should be addressed separately to the NRC staff where pertinent plant/system details can be considered. Regulatory Guides describe methods of complying with regulations that the staff finds acceptable. Methods other than described in Regulatory Guides are reviewed by the staff for acceptability on a case by case basis. Existing USNRC licensees have committed to the designs/methods they have installed/use.

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		recommended by RG 1.140 (with only two filters: HEPA filter + iodine adsorbers). Almaraz asked to the NRC staff feedback about their filtration units, does it satisfy the spirit of RG 1.140?	