ATTACHMENT - RESPONSE TO STAKEHOLDER COMMENTS

The purpose of this attachment is to list all the public comments received on Interim Staff Guidance Document 25 "Pressure and Helium Leakage Testing of the Confinement Boundary of Spent Fuel Dry Storage Systems." The NRC issued this document (ML 090850380) Via FRN 52512 for public comment on October 13, 2009, for a 45 day period and received comments from the following sources:

NEI, Nuclear Energy Institute, letter to Mr. Ron Parkhill, USNRC, dated November 14, 2009 (ML 100110339), and attached comments (ML 100110348).

The staff's resolution and any associated changes to the interim staff guidance are listed for each comment. Note that all line numbers listed in the attached table refer to the line numbering of the version issued for public comment.

ISG-25 PUBLIC COMMENTS				
NEI Comment	**ISG-25 Line No.**	**COMMENT**	**RESOLUTION**	**CHANGES TO ISG**
1	Title	The confinement boundary for dry storage is defined in each cask application. This ISG only applies if the canister is the designated confinement boundary. Suggest revising the title of the ISG as follows: "Pressure and Helium Leakage Testing of Spent Fuel Storage Canisters when Designated as the Confinement Boundary."	This draft guidance was focused on welded canister confinement boundaries; however the staff recognizes that this guidance should be applicable to all types of confinement boundaries, as consistent with the standard review plan for dry cask storage systems. As appropriate, guidance referring to "canisters" has been expanded to cask "confinement boundaries" as appropriate.	Changed title of ISG to refer to 'dry storage systems' in lieu of 'canisters'. Change selected text regarding "canisters" to "confinement boundaries." Under Technical Review Guidance added Item (5): "For bolted closure casks the entire confinement boundary should be similarly helium leak tested and pressure tested. The confinement boundary should be tested at the fabrication shop, with only a leakage test performed on the bolted lid closure seals (including drain and vent port seals) tested in-field by the DSS user."

2	11, 12, 35, 37	The distinction between canister and cask needs to be clarified. The title and scope of the ISG deals with canisters; however, the word "cask" is also used. There are several instances where "cask" is used when "canister" seems more appropriate. Verify whether the term "cask(s)" or "canister(s)" is correct in these instances in the context of the ISG.	Agree with comment. In general, cask refers to the entire spent fuel storage system, and canister refers to the subcomponent of the cask that performs the confinement function within the cask. Also see response to NEI#1.	Changed Line 10 'canister' to 'DSS confinement boundary'. Rewrote Line 26 from 'The canister confinement boundary consists of...' to 'The DSS confinement boundary for welded closed canisters consists of…'
3	15, 46, and 130	The draft ISG implies that helium leak testing applies to base material and welds. Industry recommends that the ISG be clarified to ensure that the leak rate and inspections only apply to the weld areas, not base material. This is consistent with ANSI N14.5 Section 7.3.3 which states, "to the extent practicable, all joints and seams on the containment system should be tested in the fully assembled state." This approach is justified since the possibility of a through-wall pin-hole leak in base metal is very remote due to the requirement that plate materials must be UT examined. Specific suggested changes are as follows (new text in italics, deleted text in strikeout): Line 15: "…the canister *confinement boundary* ~~shell~~ leak rate…" Line 46: "…paths *in the confinement boundary welds, joints, and connections* that could…"	The ISG does indeed apply to the entire confinement boundary including the base metal as well as the welds as required by 10CFR 72.236 (d), (j), & (l). Although the likelihood of helium leakage through thick, forged base material for any given cask is low, the staff does not have sufficient data to generically grant an exception of leak testing of base material for multiple casks that may be procured, fabricated, and operated under various conditions for multiple types of cask systems. Even though, the base metal may be examined via UT during the fabrication process, no correlation exists between the flaws being sought during the fabrication UT and the flaw sizes that may be associated with leak rates greater than 10-7 cc/sec. Additionally, a potential flaw leading to leakage may appear undetectable to UT due to its orientation and relatively small size.	Clarification is added to the Discussion Section to state: "…leak testing of the confinement boundary should encompass welds, joints, and surfaces of the confinement boundary including the base material. ISG-18 specifies exceptions for certain lid-to-shell welds. Although the likelihood of helium leakage through thick, forged base material for any given DSS confinement boundary is low, the staff does not have sufficient data to generically grant an exception of leak testing of base material that may be procured, fabricated, and operated under various conditions for multiple types of DSSs. In addition, there is not sufficient evidence to correlate the minimum flaw sizes that are detectable during other fabrication examinations (e.g., UT) with the minimum flaw sizes in any orientation that may cumulatively result in leak rates greater than 1.0 x 10^{-7} ref. cm^3/sec /sec. "

		Line 130: "… the canister ~~body is~~ *confinement boundary welds, joints, and connections are* free of defects…"	ANSI N14.5, Section 7.3.1 for the fabrication leakage rate test, states that its purpose iis to demonstrate that the "containment system, as fabricated", will provide the required level of containment. The staff interprets the first statement of Section 7.3.3 of ANSI N14.5 (quoted in the comment) to mean the seams and joints should be tested in the fully assembled state along with the rest of the containment boundary, including the base material. The second statement in Section 7.3.3 further suggests the first statement is provided because some joints or surfaces may be inaccessible in the fully assembled state of the containment boundary, not because they are the only containment surfaces that require fabrication leak testing.	
4	26	For clarity and simplification, we recommend re-wording this sentence as follows: "The canister confinement boundary consists of the canister shell, bottom plate, top lid, vent and drain port cover plates, and inter-connecting welds." If NRC deems it necessary to indicate the physical location where the welds are performed, a second sentence could be added similar to: "Some welds, such as the shell-to-bottom plate and shell seam welds are performed in the fabrication shop, while the lid-to-shell and vent port cover plate	Agree with Comment	Changed as stated in comment except that Line 26 begins as noted under 'Changes to ISG' for Comment 2.

		welds are performed in the field after fuel loading."		
5	31-34	The language in the ISG is not clear with regard to confinement boundary leakage rates and dose analyses. The ISG states "the allowable leakage rate must be evaluated for its radiological consequences and ability to maintain an inert atmosphere within the cask." It is industry's understanding and current practice that if the canister confinement boundary is tested in the fabrication shop to an acceptance criterion of "leaktight," as defined in ANSI N14.5 (i.e., 1.0×10^{-7} ref. cc/sec or less) AND the criteria of ISG-18 are met for the canister lid weld, no effluent dose contribution from the canister needs to be included in the dose analysis. Any measured leakage rate higher than this defined value would not be "leaktight" and would require an effluent dose analysis for the affected canisters. Please clarify the ISG in this regard.	Agree with Comment	Statement added: "If the entire confinement boundary is tested to be leak tight in accordance with ANSI-N14.5 (i.e. 1.0×10^{-7} ref. cm^3/sec) and canister lid-to-shell welds conforms with the criteria of ISG-18, then leakage is not considered credible and effluents should not be considered in a confinement dose analyses."
6	43-54 121- 133	It is appears that the language of the ISG would permit two alternative, but equivalent sets of testing requirements: 1. An ASME Code pressure test of the canister in the shop where all shop welds could be inspected for leakage, and an ASME Code pressure test in the field after the lid-to-shell weld has been completed. No helium leakage test in	The staff does not agree at this time that a shop pressure test replaces the need for shop helium tests. A helium leakage test is required to be performed in the shop regardless of whether a pressure test is performed in the shop or the field. They are different tests with different purposes as discussed in this ISG.	No Change

		the shop. OR: 2. A helium leakage test of the canister in the shop and an ASME Code pressure test in the field after the lid-to-shell weld has been completed. No ASME Code pressure test in the shop. As the ISG makes clear, a Code pressure test performed in the shop would permit visual inspection of the confinement boundary welds that are not accessible in the field after fuel loading. This would seem to obviate the need for a shop helium leakage test of the same welds. Is this a correct interpretation of the ISG or, as stated in line 129, is a shop helium leakage test required to be performed in the shop irrespective of whether a Code pressure test is performed in the shop?	If only a field pressure test is performed, when most of the canister is inaccessible to verify no leakage (as required by the Code pressure test acceptance criteria), the staff has accepted the shop helium leakage test results as an alternative to examining the inaccessible surfaces of the canister.	
7	44-45 53	Please describe the difference between "structural integrity" and "fabrication integrity" (perhaps in a definitions section of the ISG) because the latter is not common industry terminology. As stated in the ISG, the structural integrity of canister welds, which are formed with multiple layers, surface examined, and then volumetrically examined by performing a radiograph of the entire weld, is ensured. If the weld has been	In the context of this ISG, structural integrity refers to the design compliance and fabrication integrity refers to the as-built configuration. Even though a component may have been properly designed, it does not assure it has been properly fabricated.	Changed 2nd and 3rd sentences starting on Line 43 to: The volumetric and surface examinations of welds ensure that the welds comply geometrically with the design requirements, but can only detect flaws down to a certain size. The ASME Code pressure test provides additional assurance that the component has been properly fabricated by stressing the component to a minimum Code required loading.

		ensured to have “structural integrity” is should also have “fabrication integrity.”		
8	47	It appears that for the sentence to have the intended meaning, the comma after “Except” should be deleted.	Agree with Comment	Changed as noted in comment
9	61-66	The pre-operational testing and initial operations referred to in 10 CFR 72.24(p) apply to the testing required when implementing dry storage, as in dry run training. Therefore, this regulation does not apply to the scope of this ISG.	Partially agree with comment. The regulation can be removed for clarity. The staff notes that specification of a regulation, or lack thereof, in an ISG does not constitute legal interpretation.	Changed as requested
10	69-71	10 CFR 72.232(b) pertains to NRC access for inspecting records and is not specifically related to requirements for performing tests. Therefore, this regulation does not apply to the scope of this ISG.	Although the focus of the guidance does not apply to inspection, the requirement to maintain test records and make available test records for NRC inspection, is included for completeness.	No Change
11	81-83	In transportation licensing under 10 CFR Part 71, the canister is not credited for the containment of radioactive material. Therefore, this regulation [10 CFR 72.236(m)] does not apply to the scope of this ISG.	Partially agree with comment. In response to NEI Comment 1, the scope of has been expanded to address confinement systems for bolted closure systems. Therefore, the reference to 10 CFR 72.236(m) is applicable.	The Discussion is revised to state: ‘‘This guidance does not apply to 10 CFR Part 71 transportation package designs, and has not been considered for such package approval applications. However, DSS designers may later request that the same confinement boundary be certified as the transportation package containment boundary under 10 CFR Part 71 (i.e. non-canister-based systems). In accordance with Regulatory Guide 7.4, the guidance in ANSI N14.5, "Leakage Tests on Packages for Shipment of Radioactive Materials," constitutes a procedure acceptable to the staff for assessing the containment capability of transportation packages under 10 CFR Part 71. The applicant should consider if the DSS design (including fabrication testing of the confinement boundary)

				is compatible with transportation and the ANSI-N14.5 leak testing standards."
12	84-90	Suggest deleting the specific years for the codes and standards in this list and state "per the storage system licensing basis" after "Acceptable Codes and Standards" on line 84. The edition of the ASME Code and ANSI N14.5 to which each storage system is designed and constructed is established by each CoC holder in their licensing applications and may not be the editions stated in this section.	These specific editions of the ASME Code and ANSI 14.5 are provided as references that were used as the basis for this ISG. They do not imply that all licensees are legally bound to use this edition.	No Change
13	111-112	The pressure test conditions (125 or 110 percent of the design pressure for 10 minutes) should not be specifically called out in the text because these conditions are Code edition dependent. Referring to the ASME Code should suffice.	To avoid misunderstanding and possible conflicting interpretations, the NRC has chosen to be specific in certain instances. Additionally, these Code percentages for pressure testing have been consistent in several past ASME code editions.	No Change
14	129	The word "must" indicates a requirement. Suggest using language that better reflects the nature of a guidance document whereby other appropriately justified alternatives may be acceptable.	Partially agree with comment. Consistent with current NRC position, the Introduction of the ISG correctly states that the ISG provides guidance to the staff and is not a regulatory requirement. Alternative approaches to the ISG may be used to demonstrate safety and compliance, as appropriately justified. The staff agrees that some phrases regarding "must" and "shall" should be appropriately changed for clarity.	The selected text has been revised regarding the use of "must" and "shall" (i.e. Line 129).
15	159-	Depending on timing, the ISGs listed	Agree with comment.	The reference list is appropriately documented.

	185	may have already been incorporated into a revision to the SRP. This should be reflected in the reference list, as appropriate.	Staff notes that many ISGs apply to multiple SRPs, and incorporation of an ISG into one SRP does not necessarily constitute its discontinuation and relevance to this particular ISG.	