

# Comment Response Matrix

## Foreword and General Comments

### Foreword

In response to a request for comments on the Draft NuScale Design-Specific Review Standard, issued in June 2015, the staff received seven separate Public Submissions. The following table reflects each comment identified in each submission and identifies the commenters, their affiliation (as applicable), the Public Submission number, and the associated ADAMS Accession number. The comment number column identifies the Public Submission number in parentheses followed by a sequential number related to each separate comment in the submission. The Comment Response Matrix reflects the as-submitted comments verbatim. Any clarifying alterations are shown in brackets, and the staff's response is included in the last column titled, "NRC Staff Technical Resolution." Comment (02)-Attachment refers to an extended table of 678 comments from NuScale Power, LLC. The staff has addressed the comments numbered 1-678 in separate matrices divided by DSRS Chapter and included in ADAMS PKG ML16083A615; note that Comment 1 is a general comment applicable to all DSRS sections. The ADAMS PKG also contains the seven Public Submission documents identified earlier in this paragraph, and the *NuScale Design-Specific Review Standard Scope and Safety Review Matrix (Transitional Matrix Reflecting Changes Resulting from Public Comments)*.

Comment #	Commenter and Affiliation	Comment / Basis / Recommendation	NRC Staff Technical Resolution
(01)-1	Russell J. Bell Nuclear Energy Institute Public Submission (01) ADAMS ML15257A012	A draft DSRS is developed in parallel with a DC application (DCA), thus the completeness of the draft DSRS is subject to the completeness of the scope of the design in the DCA. Correspondingly, the DSRS development is iterative and evolves with the development of the DCA. The NRC should share the details of the in-progress DSRS with the applicant, updating them as it evolves, just as the applicant should share the details of the design with the NRC as the design evolves.	It is the policy of the NRC to encourage all applicants to engage the staff in early and frequent communications concerning any design changes. The staff has provided opportunities to NuScale to comment on the draft DSRS Sections and has exchanged DSRS-related information during various pre-application engagements with NuScale. Furthermore, it is important to note that DSRS Sections are staff guidance documents and must go through various levels of internal NRC technical and legal reviews before they are issued. Therefore, the final DSRS sections were not

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			released until these reviews had been completed.
(01)-2	Russell J. Bell Nuclear Energy Institute Public Submission (01) ADAMS ML15257A012	Consistent with the goals of clarity, predictability and efficiency, the NRC should address stakeholder comments, complete outstanding sections, and issue the final DSRS at least six months before the date of application.	The staff's goal has been to address all public comments and finalize all applicable NuScale-specific DSRS Sections as soon as possible before the NuScale DC application submittal date.
(01)-3	Russell J. Bell Nuclear Energy Institute Public Submission (01) ADAMS ML15257A012	It is possible that the maturity of some areas of the design may not support issuing the corresponding sections of the draft DSRS in accordance with the aforementioned schedule goals. In these cases, publication of the publicly available version of other sections of the draft DSRS, for which the design is mature enough to support publication on-schedule, should not be delayed as they wait for the completion of all draft DSRS sections. In this manner, the NRC should develop a process for publishing draft DSRS sections separately, based on availability, similar to what is done for the standard review plan. This will also benefit stakeholder review and comment, as it can be difficult to perform an adequate review in the allotted 60-day comment period when the draft DSRS sections are issued all at once.	The staff agrees with this recommendation and released final sections of the DSRS as they were approved. DSRS sections were issued on 11 occasions between from June 24 through August 4, 2016.
(01)-4	Russell J. Bell Nuclear Energy Institute Public Submission (01) ADAMS ML15257A012	The intent of the DSRS is to use risk insights to establish staff guidance tailored to the specific details of the design in a manner that makes the review more safety-focused and efficient. The NRC accomplishes this by reviewing existing review guidance, i.e., the standard review plan (SRP), to determine which portions should be applied to the specific design, and whether changes to existing review guidance, or new review guidance, is necessary to address any new and/or innovative design features. Many of the SRP sections will either be referenced in the DSRS as "use-as-is" or will not be included in the DSRS because the SRP section is not applicable to the design (e.g., innovative design	It is the NRC staff's goal to tailor DSRS Sections to the NuScale design. However, there are SSCs and design features that exist in large PWRs but do not exist in the NuScale design. In such instances, the DSRS Sections reflect consideration of the safety "functions" of such SSCs to ensure they are performed by other NuScale design systems or

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		<p>features obviate the need for systems structures and components (SSCs) addressed in the SRP section). Some sections of the SRP that are included in the DSRS may need to incorporate minor "editorial" modifications (e.g., nomenclature changes for design applicability) while others will require major revisions/replacement because the design meets a regulatory requirement or accomplishes a safety function in a manner different than described in the SRP.</p> <p>In this manner [it] is important that the DSRS be tailored to the specifics of the design, such that the DSRS only contains review guidance on design features and SSCs that are included within the scope of the design, and uses SSC nomenclature consistent with the design. We understand that NuScale has provided numerous DSRS comments related to achieving this objective.</p>	<p>features. In addition, the staff desires to have flexibility and latitude in the DSRS to review any unique design features that were not fully understood during preapplication interactions or that changed during the application review.</p>
(01)-5	<p>Russell J. Bell Nuclear Energy Institute Public Submission (01) ADAMS ML15257A012</p>	<p>The value of the DSRS is also measured in its ability to address design-specific policy and technical issues in a manner that provides clarity and predictability to the DC applicant and the reviewer. For designs that incorporate new or innovative design features, one of the greatest sources of regulatory uncertainty is the resolution of new technical and policy issues associated with design-specific features. Therefore, consistent with the purpose and objectives of the SRP, the NRC should make the early resolution of these design-specific issues, and the incorporation of the resolution into the DSRS, a primary objective of the DSRS process.</p>	<p>The staff agrees and encourages all applicants to identify potential policy and/or regulatory issues early in the process of considering an NRC application and communicate those to the staff. With respect to the NuScale DSRS, concurrent with addressing the regulatory issues identified in NuScale's "Gap Analysis Summary Report," the staff re-evaluated all final DSRS Sections to ensure consistency with the resolution of regulatory gap issues.</p>
(01)-6	<p>Russell J. Bell Nuclear Energy Institute Public Submission (01) ADAMS ML15257A012</p>	<p>Some design-specific issues may be addressed in technical reports submitted by the DC applicant. In these cases, the NRC should use the review of these reports to resolve the design-specific issues and document the resolution in the DSRS.</p>	<p>The staff agrees with the comment for technical reports submitted with the application. However, to initiate staff review of technical</p>

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			<p>issues before submission of the application, the topical report process is the appropriate route. It is important to note that it usually takes 12 months or longer, depending on the complexity, for the staff to complete the review of a topical report. As such, in order for an applicant to reference a topical report in the application, the applicant must consider the time that it takes for the staff to review and make a finding regarding issues that the applicant asks for staff approval through topical reports.</p>
(01)-7	<p>Russell J. Bell Nuclear Energy Institute Public Submission (01) ADAMS ML15257A012</p>	<p>Inherent in the development of the DSRS is the objective of maintaining consistency with established regulatory positions, except as noted upfront where new regulatory positions are needed to address design-specific issues. Thus, the DSRS should not establish new or different regulatory positions for portions of the design that are adequately addressed by existing guidance, and for which the new or different regulatory position could be equally applicable to other designs. In this manner, the NRC should ensure that revisions/replacements to sections of the SRP are only included in the DSRS where: 1) it is warranted by the innovative or unique features of the design, 2) there has been recent resolution of a generic issue that is applicable to the design, but which has not been reflected in the SRP, or 3) the applicant plans to deviate from the SRP and the NRC establishes a position for the design-specific approach. The NRC should also include a basis (e.g., conditions 1, 2 or 3, above) for the draft DSRS section, because in many cases it is not evident why the NRC is modifying or creating a new section for the DSRS.</p>	<p>The NRC Staff determined whether to develop a new DSRS section after considering whether significant differences in the functions, characteristics, or attributes of the NuScale design required major revision of the related SRP section guidance, or whether structures, systems, and components identified in the NuScale design are unique and not addressed by the current SRP. The Staff revisited these criteria after publishing the Draft version of this DSRS section (Issued in June 2015) and determined, based on the most recent NuScale design, that numerous related SRP sections are appropriate to</p>

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		<p>Regulatory clarity, predictability and efficiency depend upon ensuring that the DSRS does not establish new or different regulatory positions except as necessary to address unique design features. We note that the NuScale Power draft DSRS Section 14.3.8 <i>Radiation Protection - Inspection, Test, Analysis and Acceptance Criteria (ITAAC)</i> contains several new acceptance criteria that specify the need for Tier 1 information and ITAAC, such as for the minimization of contamination, that were not necessary to support the NRC's certification of previous designs, and are not related to any features unique to the NuScale design. Thus, we believe that these acceptance criteria effectively establish a new or different regulatory position and should be removed from the NuScale Power draft DSRS. This issue has been raised in generic interactions related to standardized ITAAC, and that is the appropriate forum for dealing with ITAAC issues that are not unique to the NuScale design.</p>	<p>perform the NRC safety review. Therefore, those DSRS sections were not issued as final and the related SRP sections will be used for those portions of the NuScale review. In deciding to use a related SRP section, the staff has not necessarily determined that the SRP section is wholly applicable without modification. For example, as the NRC staff gains greater understanding of the NuScale design or if the design changes during the review, the staff would assess whether different or supplemental review criteria are needed.</p> <p>For the specific example of Section 14.3.8, the staff has concluded that this draft DSRS section will not be issued as final and that SRP Section 14.3.8 is sufficient to perform the NuScale review.</p>
(01)-8	<p>Russell J. Bell Nuclear Energy Institute Public Submission (01) ADAMS ML15257A012</p>	<p>[T]he following two generic issues have a direct impact on the clarity, predictability and efficiency of NRC review of DCAs and should be resolved soon so that they do not negatively affect the issuance of a final DSRS for NuScale or the submittal and review of DCAs.</p> <p><b>Standardization of ITAAC:</b> The NRC and the nuclear industry have been meeting since 2013 to develop standardized ITAAC and these interactions have resulted in significant alignment on the scope of ITAAC for DCAs, which is reflected in NEI 15-02,</p>	<p>The staff is currently considering these issues as generic matters outside the scope of the DSRS development process. Unless and until these initiatives result in changes to NRC guidance, the staff will use current approved guidance documents to review NuScale's SMR DC application.</p>

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		<p><i>Industry Guideline for the Development of Tier 1 and ITAAC Under 10 CFR Part 52, Draft A of Revision 0, dated May 2015.</i> The NuScale DCA is the lead applicant for NEI 15-02, and therefore NEI 15-02 should be incorporated into and reflected in the NuScale Power DSRs Section 14.3. ...</p> <p><b>Use of Tier 2*:</b> ... In a December 19, 2014, letter to the NRC, we provided a basis for our recommendation that Tier 2* information should not be included in future DCs. Pending resolution of this issue, we understand that SMR applicants do not plan to include Tier 2* information in their DCAs. Correspondingly, there should not be a discussion of Tier 2* in the DSRs. We look forward to the NRC providing an update on their reassessment of the need for and scope of Tier 2* in future design certifications as soon as possible.</p>	<p>The staff transmitted Draft Standard ITAAC for NuScale's consideration via letter dated April 8, 2016. Additions to the Draft Standard ITAAC were transmitted to NuScale via letter dated June 21, 2016. ADAMS PKG Nos. ML16096A121, and ML16160A179.</p>
(01)-9	<p>Russell J. Bell Nuclear Energy Institute Public Submission (01) ADAMS ML15257A012</p>	<p>Finally, it is important that the purpose and objectives of the DSRs are consistently achieved across all of the sections. We understand that NuScale has provided numerous comments on the draft DSRs related to achieving this objective. Although variations in the level of detail in the design may contribute to these inconsistencies, we believe that a lack of clear instructions on the development of the DSRs sections is also a contributing factor. To this end, we support the NRC's plans to include guidance on the DSRs in the on-going update to Regulatory Guide (RG) 1.206, <i>Combined License Applications for Nuclear Power Plants</i>. As RG 1.206 is intended for applicants, and provides guidance relevant to their participation in the DSRs process, we recommend that the NRC also document (e.g., in an office instruction) the objectives of the DSRs and the steps for its development by NRC staff.</p>	<p>The staff will discuss and consider this comment and suggestion in future updates to RG 1.206. However, it is important to note that DSRs are design-specific and not applicable to all designs.</p>

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(02)-1	Steven Mirsky NuScale Power, LLC Public Submission (02) ADAMS ML15258A081	NuScale understands that the draft DSRS could not be written under the assumption that the NRC would agree with NuScale positions in the gap analysis... . NuScale does believe that the DSRS would be more useful if the guidance and acceptance criteria were added to the DSRS, so that the reviewer would understand how to evaluate the various departures and exemptions expected in our DCA.	The staff does not agree with this comment because NuScale's positions on gap issues need to be justified in its application. Thus, discussions and positions associated with the Gap Issues are being documented separately from the DSRS. Should NuScale take the position that a regulation is not applicable or not technically relevant to its design, it is incumbent upon NuScale to provide a technical basis to explain why the requirements in the regulation do not apply to the design or why the regulation is not technically relevant to the design. To the extent that NuScale requests an exemption from the regulations, the staff will review each exemption request presented in the Design Certification Application on a case-by-case basis and will consider the justification and basis for any requested exemption as it is documented in the application.
(02)- Attachment	Steven Mirsky NuScale Power, LLC Public Submission (02) ADAMS ML15258A081	The attachment [to this letter] contains NuScale's new comments on the draft DSRS.	The staff has addressed the Comments numbered 1-678, from the Attachment to the NuScale submission letter identified in this item, in separate matrices divided by DSRS Chapter and included in ADAMS PKG ML16083A615.

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(03)-1	Mark Thompson Public Submission (03) ADAMS ML15292A309	I am opposed to any nuclear plant being built in Washington State. We have hydroelectric, wind and solar power. Absolutely no need for nuclear!	This comment is outside the scope of the NuScale DSRS project. The staff did not make any changes to DSRS Sections as a result of this comment.
(04)-1	Anonymous Public Submission (04) ADAMS ML15292A310	<p>The fraudulent waste of further taxpayer monies associated with the licensing of NuScale (MASLWR) and other SMR should be stopped immediately. While you probably can't do anything about the Dept. of Energy money wasted on "NuScale" -actually MASLWR (Multi-Application Small Light Water Reactor)- , when it belonged to the government, and now after it has been given to former employees and renamed NuScale (nor before that in the 1950s), you can abstain from wasting more taxpayer money on your end dealing with the licensing.</p> <p>NuScale is not passive, it is not safe, it is not new. It is based off of old US Army reactors from the 1950s, combined with the Lucens nuclear reactor, which underwent a major nuclear disaster in 1969. Probably it has the swimming pool test reactors thrown in. One of the first military reactors was made by American Locomotive company (ALCO) so the "technology" is probably even older. In short, it's probably old steam railroad locomotive "technology" from over 200 years ago.</p> <p>"Conduction through the vessel wall is by itself not a sufficient mechanism for heat removal in the present design. A circulation path is required to effectively remove the core decay heat. The sump makeup system is required." p.12. "PERFORMANCE AND SAFETY STUDIES FOR MULTI-APPLICATION, SMALL, LIGHT WATER REACTOR (MASLWR)1 James E. Fisher, S. Michael Modro, Kevan D. Weaver Idaho National Engineering and Environmental Laboratory Jose Reyes, John Groome Oregon State University Pierre Babka Nexant, Inc. <a href="http://www4vip.inl.gov/relap5/rius/sunvalley/fisher-maslwr.pdf">http://www4vip.inl.gov/relap5/rius/sunvalley/fisher-maslwr.pdf</a>.</p>	This comment is outside the scope of the NuScale DSRS project, which focuses on the standards for review rather than the adequacy of the design. The adequacy of the design will be addressed in the application review. The staff did not make any changes to DSRS Sections as a result of this comment.



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		<p>“5 022a  SBO - failure of the ADS vent valves: valve stuck open at the first opening Sump valve not operated  To investigate the grace time and the containment pressure peak if SUMP valves are not operated and the ADS vent valves stuck open.  HTC top valve opened  Grace time of about 6 hours before CHF conditions are reached at top of the core. The dryout cannot be quenched  Primary system coolant released through the HTC top valve outside the containment”  From "Deterministic safety analysis of Station Blackout postulated accident on the basis of the SMR simulator MASLWR , A. Del Nevo Report RdS/2012/014, Agenzia nazionale per le nuove tecnologie,l'energia  <a href="http://www.enea.it/it/Ricerca_sviluppo/documenti/ricerca-di-sistema-elettrico/nuovo-nucleare-fissione/lp2/2011/014-lp2-rds-pdf">http://www.enea.it/it/Ricerca_sviluppo/documenti/ricerca-di-sistema-elettrico/nuovo-nucleare-fissione/lp2/2011/014-lp2-rds-pdf</a></p> <p>As pointed out by an ardent pro-nuclear military man: American Locomotive Company made one of the first army reactors:  <a href="https://en.wikipedia.org/wiki/Army_Nuclear_Power_Program#">https://en.wikipedia.org/wiki/Army_Nuclear_Power_Program#</a>  Also pointed out by same person: Kiewit who signed a MOU with NuScale in 2008 worked on construction of the SM-1a. His admissions definitively scuffle the Nu in NuScale.</p> <p>Chickens will come home to roost soon. A US nuclear accident is imminent and it's not upping the dose you consider safe by 100 fold, as you plan, which will change reality. While I predict that you and the DOE won't get by with these cons much longer, if you do you will still have to be accountable when you die. With current DOE-NRC policies this may be soon. So, it's best to repent now, come clean, and stop this relicensing and all of the other financial and health crimes. There's no forgiveness without repentance.</p>	

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(05)-1	Anonymous Public Submission (05) ADAMS ML15292A311	Nuclear is insane, nuclear waste is not disposable. NO on any nuclear NO on nuclear waste, No on bio mass No on coal. We have solar, wind and water. Greed for few is most likely why this sort of thing is even brought up as an option.	This comment is outside the scope of the NuScale DSRS project. The staff did not make any changes to DSRS Sections as a result of this comment.
(06)-1	Clinton Ferrara Public Submission (06) ADAMS ML15292A333	I am opposed to all storage of nuclear waste. It will not be contained for it's life span.	This comment is outside the scope of the NuScale DSRS project. The staff did not make any changes to DSRS Sections as a result of this comment.
(07)-1	Paula Ferrara Public Submission (07) ADAMS ML15292A334	No nuclear. So much technology available for solar, wind, or water. Yet you go forward with nuclear and nuclear waste. It is an insane to even consider. Money must be at the root of this, common sense, & integrity, certainly in not.	This comment is outside the scope of the NuScale DSRS project. The staff did not make any changes to DSRS Sections as a result of this comment.