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Docket: NRC-2021-0038

Safety-Related Steel Structures and Steel-Plate Composite Walls for other than Reactor Vessels and Containments

Comment On: NRC-2021-0038-0001

Safety-Related Steel Structures and Steel-Plate Composite Walls for Other Than Reactor Vessels and Containments

Document: NRC-2021-0038-DRAFT-0004

Comment on FR Doc # 2021-02720

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General Comment

Please see attached NuScale Power, LLC letter with comments (Docket ID: NRC-2021-0038)

Attachments

LO-101212 FRN Comments on DG-1304_Final

March 26, 2021

Docket No. NRC-2021-02720

Office of Administration
ATTN: Program Management, Announcements and Editing Staff
Mailstop: TWFN-7A06
U.S. Nuclear Regulatory Commission
Washington, DC 20555-0001

SUBJECT: Submission of Comments on Draft Regulatory Guide DG-1304, "Safety-Related Steel Structures and Steel-Plate Composite Walls for Other Than Reactor Vessels and Containments," Docket ID NRC-2021-02720

REFERENCES:

1. Safety-Related Steel Structures and Steel-Plate Composite Walls for Other Than Reactor Vessels and Containments, 86 Fed. Reg. 8928, Feb. 10, 2021
2. Draft Regulatory Guide DG-1304, "Safety-Related Steel Structures and Steel-Plate Composite Walls for Other Than Reactor Vessels and Containments," Feb. 2021

In a Federal Register Notice dated February 10, 2021 (Reference 1), the U.S. Nuclear Regulatory Commission (NRC) issued for public comment draft Regulatory Guide DG-1304 (Reference 2), requesting that comments be submitted by March 29, 2021.

The attachment to this letter provides comments on behalf of NuScale.

Please feel free to contact Liz English at (541) 452-7333 or at EEnglish@nuscalspower.com if you have any questions.

Sincerely,



Carrie Fosaaen
Director, Regulatory Affairs
NuScale Power, LLC

Attachment: Comments and Review of U.S. Nuclear Regulatory Commission Draft Regulatory Guide DG-1304 (Proposed new Regulatory Guide 1.243) Safety-Related Steel Structures and Steel-Plate Composite Walls for Other Than Reactor Vessels and Containments

Comments and Review of U.S. Nuclear Regulatory Commission Draft Regulatory Guide DG-1304 (Proposed new Regulatory Guide 1.243) Safety-Related Steel Structures and Steel-Plate Composite Walls for Other Than Reactor Vessels and Containments			
No.	Page/Section/Paragraph	Comment	Proposed Resolution
1.	Page 2, Additional Requirements	Citations to Part 52 requirements are incomplete. 10 CFR 52.77 is not relevant. It's unclear what portion of 10 CFR 52.47 and 52.79 are relevant. Similar requirements for SDA and manufacturing license applications are not cited. Further, analogous Part 50 application requirements are not cited.	Either provide all applicable Part 50 and 52 regulations with the specific relevant provision, or omit the incomplete Part 52 regulations.
2.	Page 3, Related Guidance	ASCE/SEI 37-14 is listed as related guidance. This standard is not NRC guidance and has not been endorsed via an NRC guidance document.	Delete ASCE/SEI 37-14 from related guidance. If the contents of that standard are relevant and appropriate, it should be directly addressed within this guidance document as an acceptable standard.
3.	Page 5, Section B, Paragraph 5	<p>BNL-220652-2020-INRE is discussed as technical background for this DG. It describes the assessment of ANSI/AISC N690-18 for use in nuclear power plants.</p> <p>BNL-220652-2020-INRE (page 4-10) Design for Corrosion Effects, states: "Where corrosion could impair the strength or serviceability of a structure, structural components shall be designed to tolerate corrosion or shall be protected against corrosion."</p> <p>The DG does not address design considerations for corrosion effects.</p>	Provide in the RG additional criteria, if any, for exterior SC walls susceptible to corrosion.
4.	Page 8, Section C, Paragraph 2.1.5	The DG states "In load combination (NB2-9), 0.7Ess is to be combined absolutely with the accident loads." 0.7Ess appears to be a typo.	Replace with 0.7Es.

Comments and Review of U.S. Nuclear Regulatory Commission Draft Regulatory Guide DG-1304 (Proposed new Regulatory Guide 1.243) Safety-Related Steel Structures and Steel-Plate Composite Walls for Other Than Reactor Vessels and Containments			
No.	Page/Section/Paragraph	Comment	Proposed Resolution
5.	Page 10, Section C, Paragraph 4.2	While section 4.2 is applicable to high strength reinforcement, clarify the use of high strength structural steel with yield stress up to 75 ksi.	Provide a statement that if not using high strength reinforcement, this RG endorses the use of structural steel with yield stress not to exceed the 75 ksi in design using the rules of ANSI/AISC N690-2018, Chapter NI.
6.	Page 13, Section C, Paragraph 11.1.9	It is unclear if the 25% increase in faceplate thickness as described in Section N9.1.6c is required.	Clarify whether the 25% increase in Section N9.1.6c is applicable.
7.	Page 13, Section C, Paragraph 11.2	<p>The DG states “These averaging guidelines are generic and may not be suitable in all cases. The implementation of these guidelines or any alternate averaging methodology will be subject to case-specific review by the NRC staff.”</p> <p>Additional guidance on the suitability and implementation of averaging guidelines is needed.</p>	Provide criteria or examples of cases where the averaging guidelines are deemed not suitable. Identify considerations for acceptable implementation of the averaging guidelines or an alternate averaging methodology.
8.	Page 7, Section C, Table 1	<p>In response to Docket NRC-2019-0100, Safety Related Concrete Structures for Nuclear Power Plants (Other than Reactor Vessels and Containments), DG-1283, the leadership of ACI 349 provided comments as documented in Adams Accession number ML19176A439. Comment 5 states as follows:</p> <p style="text-align: center;"><i>We disagree with the NRC position to require a load factor of 1.0 for live load. The load factors in Chapter 9 ACI 349-13 are associated with lower strength (phi) factors; ACI 349-13 Appendix C load factors are used with higher strength (phi) factors. Thus, increasing load factors in ACI 349-13 Chapter 9 to match those of ACI-349-13 Appendix</i></p>	Apply a value of 0.8 for live load instead of 1.0 for load combinations as per ANSI/AISC N690-18 Section NB2.5.

Comments and Review of U.S. Nuclear Regulatory Commission Draft Regulatory Guide DG-1304 (Proposed new Regulatory Guide 1.243) Safety-Related Steel Structures and Steel-Plate Composite Walls for Other Than Reactor Vessels and Containments			
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		<p><i>C erroneously alters the global safety factor. It is also noted that ACI 318 allows live load reductions that result in an equivalent load factor of 0.5L. These reductions are not permitted in nuclear safety-related construction. It is strongly recommend that the NRC review their position in this regard.</i></p> <p><i>Regarding the load factor in ACI 349-13 for live load, as explained in the commentary of ASCE 7 Section C2.3, the loads used in design account for the maximum lifetime value as well as arbitrary point-in-time values, with the maximum lifetime value always controlling. When many different types of loads are superimposed in a load combination, as is the case for abnormal or extreme load combinations, the arbitrary point-in-time value or the mean value of the load (accounting for industry variation) should be used. The live load mean value varies between 0.5 to 0.8 of the maximum lifetime value. The value of 0.8L is used for load combination 9-5 to 9-9 on this basis.</i></p> <p>NuScale agrees and considers comment #5 on live load also applicable to DG-1304.</p>	
9.	Page 7, Section C, Table 1	<p>In response to Docket NRC-2019-0100, Safety Related Concrete Structures for Nuclear Power Plants (Other than Reactor Vessels and Containments), DG-1283, the leadership of ACI 349 provided comments as documented in Adams Accession number ML19176A439. Comment 4 states as follows:</p> <p><i>In as much as Ro is computed mainly from thermally-induced elongation of piping, it is not clear why this should be associated with enhanced uncertainty as stated in the</i></p>	<p>Ro should not be treated same as live load (L) in load combinations. Apply Ro to be consistent with ANSI/AISC N690-18 Section NB2.5.</p>

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		<p><i>NRC position. Note also that there is already significant conservatism associated with the use of an envelope of temperatures for these cases. Please note that the nuclear industry has long struggled with the difficulty of dealing with temperature loads on nuclear structures. The self-relieving nature of the temperature load makes it less critical than other loads. Adding larger load factors sends a wrong message to the designers that the way to deal with temperature is to make the structure stronger. This again is counter-productive to a rational design.</i></p> <p><i>Furthermore, the codes recognize the cumulative approach contained in ASCE 7, which holds that as an increasing number of loading types are combined, the less likely it is that the peaks of these loads will occur concurrently. Ro is consistently addressed in this regard in ASCE 43, ACI 349 and AISC N690.</i></p> <p>NuScale agrees and considers comment #4 on Ro applicable for DG-1304.</p>	