



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

September 14, 2022

Mr. Thomas A. Bergman, Vice President
Regulatory Affairs
NuScale Power, LLC
1100 Circle Boulevard, Suite 200
Corvallis, OR 97330

SUBJECT: U.S. NUCLEAR REGULATORY COMMISSION RESPONSE TO REQUEST TO
CLARIFY WHETHER INSTALLATION OF EXCAVATION SUPPORTS IS A
PRECONSTRUCTION ACTIVITY

Dear Mr. Bergman:

In your letter dated August 2, 2022, you requested clarification on the interpretation of the term “construction” in Title 10 of the *Code of Federal Regulations* (10 CFR) 50.10(a) to support ongoing planning and application development activities for the Carbon Free Power Project (CFPP).¹ You stated that CFPP “intends to excavate for the NuScale reactor building in advance of receiving a combined license (COL), including supports within the excavation for the purposes of worker safety, and not for or serving any nuclear safety or security purpose.” Therefore, CFPP believes the supports are properly excluded from the scope of construction requiring the U.S. Nuclear Regulatory Commission (NRC) permission.

The letter describes the planned excavation supports as “composed of “tie backs”—lateral anchors installed in the excavation wall—and a thin, non-structural, sprayed- concrete excavation lining to stabilize the exposed rock walls” that “will be abandoned in place prior to backfilling the excavation and, thus, would constitute a “permanent” installation (including concrete) within the excavation.” The letter also notes that “CFPP’s construction plans may evolve to necessitate different excavation supports, and excavations at future sites for the NuScale or other reactor designs will likely utilize similar excavation supports, such as sheet piles.” Thus, your letter requests generic clarification on whether tie backs and other comparable excavation support systems that are permanently installed within an excavation that NuScale believes are “only for construction and worker safety purposes, serving no function with respect to the completed nuclear facility,” are within the scope of “construction” requiring NRC permission under 10 CFR 50.10.

CONTACTS: Carolyn Lauron, NRR
301-415-2736

Omid Tabatabai, NRR
301-415-6616

¹ Letter from T. Bergman to R. Taylor, “Excavation supports as a preconstruction activity,” dated August 2, 2022, Agencywide Document Access and Management System (ADAMS) Accession No. [ML22214A172](#).

Based on the broad description and discussion in your letter, the NRC staff understands that the proposed excavation supports will function as an erosion control barrier to maintain the excavation. The NRC staff considered the use of erosion control measures during site excavation in the promulgation of the limited work authorization (LWA) rule.² As discussed in the supplementary information to the final rule, Section II.B.4, "Excavation," the NRC received a comment "...to specify that excavation includes appropriate erosion control measures to stabilize site excavations pending LWA or license approval of construction activities."³ The NRC responded to this comment as follows:

The NRC's definition of construction in the final LWA rule includes: (1) Any change made to the parent material in which the excavation occurs (e.g., soil compaction, rock grouting); and (2) The placement of permanent [structures, systems and components] SSCs that are put into the excavation during or after the excavation (e.g., installation of permanent drainage systems, or placement of mudmats). If the erosion control measures are conducted outside of the excavated hole and do not cover up the exposed soil conditions, then those activities would be allowed under § 50.10(a). However, under the final LWA rule, the placement of temporary SSCs in the excavation, such as retaining walls, drainage systems, and erosion control barriers, all of which are to be removed before fuel load, would not be considered construction.

The NRC further discussed excavation activities associated with "construction," in the supplementary information to the final rule, Section III.D.3, "Temporary Structures and Activities in Excavation:"⁴

Construction, under the LWA final rule, includes the placement/installation of backfill, concrete, or permanent retaining walls within an excavation. These activities involve the placement/installation of permanent parts of the overall facility, and therefore are properly considered "construction." By contrast, the placement/installation of temporary SSCs which will not become part of the final facility, and therefore are removed, should not be treated as "construction," inasmuch as they have no ongoing nexus to radiological health and safety or common defense and security. Accordingly, activities in the excavation for SSCs within the scope of construction, such as the placement/installation of temporary drainage, erosion control, retaining walls, environmental mitigation, are not considered to be within the purview of "construction," so long as these temporary items are removed from the excavation before fuel load.

² U.S. Nuclear Regulatory Commission, Final Rule, "Limited Work Authorizations for Nuclear Power Plants," Volume 72 of the *Federal Register* (FR) Pages 57146 - 57447 ([72 FR 57146](#); October 9, 2007).

³ U.S. Nuclear Regulatory Commission, Final Rule, "Limited Work Authorizations for Nuclear Power Plants," [72 FR 57419](#), 3rd column; October 9, 2007.

⁴ U.S. Nuclear Regulatory Commission, Final Rule, "Limited Work Authorizations for Nuclear Power Plants," [72 FR 57429](#), 2nd column; October 9, 2007.

Consistent with the considerations in the final LWA rule, the NRC staff issued guidance in Revision 1 to Regulatory Guide (RG) 1.206, “Applications for Nuclear Power Plants,” Section C.2.18, “Limited Work Authorization:”⁵

The installation of a temporary feature within the excavation or area associated with construction that will be removed during construction is considered to be a preconstruction activity. Such features include some retaining walls, some types of dewatering systems, ramps, and other structures that have no physical presence following construction.

Regarding installation of temporary features within the necessary excavation during preconstruction, if the applicant proposes to abandon the subject feature in place, the NRC must approve that action (i.e., abandonment) as part of an LWA or COL application. Examples may include certain retaining walls and some types of dewatering systems. The applicant must show that the abandoned feature would not adversely affect the SSCs, introduce undesirable flow paths, or otherwise conflict with nuclear plant safety or regulatory compliance, and the NRC would have to approve.

CFPP’s proposed interpretation of the rule appears to hinge on the question of whether the excavation supports would be installed for the purpose of worker safety and not for the purpose of structural safety; further, it ignores the question of whether the excavation supports, if left in place, could have an effect on the structure’s safety. Moreover, CFPP has not provided any explanation or technical justification regarding impacts to nuclear or structural safety.

Based on the statements of consideration for the final LWA rule, and the guidance in Revision 1 to RG 1.206 for the abandonment of temporary features within excavation, the NRC staff concludes that the installation and abandonment of excavation supports or any other comparable excavation support systems that are permanently installed within an excavation, even if an applicant believes they are “only for construction and worker safety purposes, serving no function with respect to the completed nuclear facility,” is within the scope of “construction” as contemplated in the regulations and requires prior NRC permission.

Since the NRC staff considers your proposal of installing and abandoning in place the excavation supports as within the scope of “construction,” options that NuScale may wish to consider include, without limitation:

- Applying for an exemption to the definition of “construction” in 10 CFR 50.10(a)(1) with supporting technical information demonstrating that the installation and abandonment of the proposed excavation supports or comparable excavation support systems do not change the parent material, adversely affect the final facility’s SSCs, introduce undesirable hydrology flow paths, or otherwise conflict with nuclear plant safety or regulatory compliance.^{2,5}

⁵ U.S. Nuclear Regulatory Commission, Regulatory Guide 1.206, “Applications for Nuclear Power Plants,” Revision 1, October 2018, Page 117 ([ML18131A181](#)).

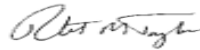
- Including in any request for a LWA a request for permission to install and abandon the excavation supports or comparable excavation support systems with the appropriate information required by 10 CFR 50.10(d)(3)(i).⁶
- Removing the excavation supports or comparable excavation support systems when they are no longer needed prior to commencing other construction activities, rather than abandoning them in place.
- Justifying abandonment of the excavation supports or comparable excavation support systems in place, as part of your COL application, by demonstrating that such abandonment will not adversely affect public health and safety or the common defense and security, and postponing the installation of excavation supports until the COL application is approved.

The NRC staff cautions that preconstruction activities and any activities approved under an LWA are conducted at the risk of the prospective applicant or LWA holder, and environmental impacts of any preconstruction and construction activities may require mitigation, as set forth in 10 CFR 50.10(d)(3)(iii), (f) and (g), and must be considered consistent with the requirements described in 10 CFR 51.45(c) and 51.49(b).

The NRC staff is available to discuss this matter with you, consistent with your letter (i.e., your request for a future public meeting with representatives from the NRC and the Department of Energy). Therefore, the NRC staff plans to coordinate with you to schedule that meeting in order to further understand your proposal and/or to discuss the observations in this letter.

If you have any questions, please contact Michael Dudek at 301-415-6500 or at Michael.Dudek@nrc.gov

Sincerely,



Signed by Taylor, Robert
on 09/14/22

Robert M. Taylor, Deputy Director
Office of Nuclear Reactor Regulation

Docket No. 99902052

cc: John Volkoff, NuScale
Scott Head, CFPP

⁶ 10 CFR 50.10(d)(3)(i) A safety analysis report required by 10 CFR 50.34, 10 CFR 52.17 or 10 CFR 52.79 of this chapter, as applicable, a description of the activities requested to be performed, and the design and construction information otherwise required by the Commission's rules and regulations to be submitted for a construction permit or combined license but limited to those portions of the facility that are within the scope of the limited work authorization. The safety analysis report must demonstrate that activities conducted under the limited work authorization will be conducted in compliance with the technically-relevant Commission requirements in 10 CFR Chapter I applicable to the design of those portions of the facility within the scope of the limited work authorization.

SUBJECT: U.S. NUCLEAR REGULATORY COMMISSION RESPONSE TO REQUEST TO CLARIFY WHETHER INSTALLATION OF EXCAVATION SUPPORTS IS A PRECONSTRUCTION ACTIVITY DATED SEPTEMBER 14, 2022

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ADAMS Accession No.: ML22222A012

***via email**

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NAME	KErwin	MDudek	STurk	BSmith	EBenner
DATE	09/12/2022	09/12/2022	09/12/2022	09/13/2022	09/12/2022
OFFICE	NRR				
NAME	RTaylor				
DATE	9 /14 /2022				

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Carbon Free Power Project Preapplication Mailing List

(Revised 08/17/2022)

cc:

Mason Baker
Chief Legal Officer and General Counsel, UAMPS
155 North 400 West, Suite 480
Salt Lake City, UT 84103

Matthew Featherston
COLA Licensing Lead, Fluor
100 Fluor Daniel Drive, Center 1
Greenville, SC 29607

Mr. Scott Head
Regulatory Affairs Manager, CFPP, LLC
155 North 400 West, Suite 480
Salt Lake City, UT 84103

Shawn Hughes
Project Director, CFPP, LLC
155 North 400 West, Suite 480
Salt Lake City, UT 84103

Glenn J. Neises
Nuclear Director, Burns & McDonnell
9400 Ward Parkway
Kansas City, MO 64114

John Volkoff
NuScale Power, LLC
Carbon Free Power Project
155 North 400 West, Suite 480
Salt Lake City, UT 84103

Eric Woods
COLA Project Manager, Fluor
1 Fluor Daniel Drive
Sugar Land, TX 77478

Carbon Free Power Project Preapplication Mailing List

Email

eric.woods@fluorgov.com (Eric Woods)
gneises@burnsmcd.com (Glenn J. Neises)
jvolkoff@nuscalepower.com (John Volkoff)
kperkins@nuscalepower.com (Kyra Perkins)
LicensingCFPP@nuscalepower.com (CFPP Licensing mailbox for all correspondence)
mason@uamps.com (Mason Baker)
Matthew.Featherston@fluorgov.com (Matthew Featherson)
sbaughn@nuscalepower.com (Susan Baugh)
scott.head@cfpplc.com (Scott Head)
shawn@cfpplc.com (Shawn Hughes)
tcohen@nuscalepower.com (Tamela Cohen)

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INSTALLATION OF EXCAVATION SUPPORTS IS A PRECONSTRUCTION ACTIVITY DATE September
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OFFICE	NRR			
NAME	RTaylor	RT		
DATE	Sep 14, 2022			

