



October 26, 2021

Ms. Jackie Coombs  
CFPP Member Communication  
155 North 400 West,  
Suite 480  
Salt Lake City, UT 84103

RE: Question(s) received by Los Alamos County Utilities Board at July 7, 2021 Meeting

Dear Ms. Coombs,

Please find below a letter for your review regarding questions the Los Alamos County Utility Board received on July 7, 2021. We would like to transmit this letter to the Los Alamos County Utility board during the week of November 1<sup>st</sup> after incorporating any suggestions or feedback you may have regarding the content. Please feel free to email me or call me at your convenience.

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During the referenced meeting, the board was asked to provide additional qualification background associated with the use of NuFuel HTP2™, the nuclear fuel assembly used in the NuScale Power Module reactor. This letter provides a high level summary of the NuFuel HTP2™ selection and development process as well as a summary of the NRC review process and links to the NRC staff Safety Evaluation Report with regard to the acceptable use of NuFuel HTP2™ in the NuScale small modular reactor (SMR).

Prior to NuScale's submittal of its Design Certification Application to the U.S. Nuclear Regulatory Commission (NRC), NuScale selected Framatome Fuels North America (f/k/a AREVA) as the fabricator of NuFuel HTP2™. NuFuel HTP2™ was specified and developed by NuScale, in collaboration with Framatome, to leverage Framatome HTP™ fuel design and operational experience. The NuScale fuel assembly is premised on the Framatome HTP™ fuel design. Framatome has been manufacturing nuclear fuel for 52 years. Over 20,000 Framatome 17x17, HTP™ assemblies have been deployed in 52 reactors supporting power generation in 11 countries. NuScale's NuFuel HTP2™ fuel assembly design uses industry standard ceramic UO<sub>2</sub> nuclear fuel pellets contained in Framatome's proprietary M5® cladding. More than five million M5® clad fuel rods have been used in 84 reactors around the globe.

All components of the NuFuel HTP2™ assembly have significant and relevant operating experience that demonstrates their suitability for use in the NuScale SMR. Several prototypic NuFuel HTP2™ fuel assemblies were manufactured by Framatome and underwent their standard suite of mechanical and hydraulic testing to support the NuScale Design Certification Application. NuScale has no plans to offer any fuel design other than NuFuel HTP2™.



NRC NUREG-0800<sup>1</sup>, “Standard Review Plan for the Review of Safety Analysis Reports for Nuclear Power Plants: LWR Edition”<sup>2</sup>, is the regulatory guidance the NRC staff utilized to review the NuScale design basis presented in its Design Certification application. NUREG-800, chapter 4.2, Fuel System Design, revision 3, specifies the criteria the NRC staff used to review the application of NuFuel HTP2™ in the NuScale SMR including the review of relevant operating experience and direct experimental and testing results.

The NRC staff Safety Evaluation Report (SER)<sup>2</sup> for NUREG-800 Chapter 43 NuFuel HTP2™ concludes that NuFuel HTP2™ is acceptable for use in a NuScale SMR. In particular, Section 4.2.4.3.2 Testing, Inspection and Surveillance Plans, of the SER, states the following:

*The staff compared the NuScale fuel assembly components with the AREVA operational fleet database and notes that significant experience has been developed for the same components. The staff further notes that the NuScale plant operational parameters important to fuel behavior are not significantly different from those in the AREVA operating fleet; therefore, the staff finds that the AREVA operating experience applies to NuScale fuel assemblies.*

Chapter 4 of the Safety Evaluation Report provides a wealth of information should you have more questions on the use of NuFuel HTP2™ in a NuScale SMR.

<sup>1</sup> Link to NUREG-800 is as follows: <https://www.nrc.gov/reading-rm/doc-collections/nuregs/staff/sr0800/cover/index.html>

<sup>2</sup> Link to NRC Safety Evaluation Report for Chapter 4.2 is as follows:  
<https://www.nrc.gov/docs/ML2020/ML20205L411.pdf>

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Best Regards,

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CC: Larry Linik, Allyson Callaway, Dr. Robert Gamble, Dr. Jose Reyes, Carrie Fosaaen, Mike Miller, and Ryan Dean