

NE-22-28230 Support for Analysis of USNC Micro Modular Reactor Fuel Performance

Ultra Safe Nuclear Corporation (USNC), based in Seattle, WA, is a small business whose mission is to provide carbon-free, safe, reliable, energy anywhere through the deployment of their micro-modular reactors, MMR™.

This project will include the analysis of fuel performance under Micro Modular Reactor (MMR) operating conditions and assess if using recycled uranium in Fully Ceramic Microencapsulated (FCM) fuel is viable. Due to the potential long core life of the MMR, the current codes for TRISO (Bison and PARFUME) are not optimized for the operating conditions. USNC will work with INL to understand the potential of radionuclide release from FCM fuel. The results will support near-term deployment and operation of MMRs.

Idaho National Laboratory's highly developed methodologies to analyze fuel performance through the use of BISON and/or PARFUME will be utilized for this work as well as TRISO fuel experts.