

## **NE-22-27452 Deployment and Characterization Support for USNC Pilot Fuel Manufacturing Facility**

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

USNC operates two facilities that are being used to scale up and deploy pilot production lines for MMR™ core materials and fuel. There are two interrelated needs for scaling up the production lines. First is support for computational fluid dynamics of chemical vapor infiltration and chemical vapor deposition (CVI/CVD) processes. These are complex systems that require specialized analysis capabilities which are available in the DOE lab complex. The second challenge is characterization of manufactured ceramics and coated particles to improve quality and efficiency of the process. Characterization requires unique equipment and experience that is available in the DOE lab complex.

Oak Ridge National Laboratory (ORNL) holds distinctive capabilities in these areas. By leveraging these lab capabilities, USNC will further the efficient deployment and operation of manufacturing modules at their facilities.