

NE-24-32526 – Horizontal Refueling and Remote Handling Design Review

Boston Atomics is located in Boston, MA. Their mission is to create the easiest-to-build, safest, low-cost nuclear technology to decarbonize process heat and electricity.

Boston Atomics is developing Modular Integrated Gas-Cooled High Temperature Reactor (MIGHTR), a High Temperature Gas Reactor (HTGR) with a design-to-build philosophy. To create an easy-to-build reactor architecture, the reactor and steam generator are integrated, and the combined system is oriented horizontally. This simplifies construction but creates operational complexity, primarily in the refueling process.

The Remote Systems Group (RSG) at Oak Ridge National Laboratory (ORNL) will perform a three-stage design review focused on operations, the detailed design, and a failure modes and effects analysis. Their experience base is uniquely valuable to MIGHTR and In-Vessel Fuel Handling Machine (IVFHM) development. This project will mitigate the risk of operational complexity by reviewing a critical system.