



ACCELERATING NUCLEAR INNOVATION WITH PROVEN EXPERTISE & NEW, INDUSTRY-LEADING CAPABILITY

Element Huntsville has expanded its nuclear testing portfolio with a newly built Advanced Reactor facility for LOCA & HELB testing, engineered to deliver the precision, speed, and reliability today's reactor developers require. Backed by more than 40 years of LOCA/HELB testing experience, our upgraded systems give customers faster paths to qualification, more profound insight into material and component performance, and an unmatched testing partner invested in their long-term success.

PURPOSE-BUILT FOR AR DEMANDS

Our new facility features four advanced test chambers designed for rapid pressure/temperature ramping, high-fidelity environmental simulation, and fully integrated control systems optimized for repeatable, high-accuracy results.

CHAMBER CAPABILITIES

2 LOCA Chambers (Horizontal & Vertical)

- 1500 psi max pressure at 700°F max temperature
- Ultra-fast steam injection ramps (330°F → 666°F in 1 second)
- Horizontal: 48" diameter × 6 ft deep
- Vertical: Same specs, designed for vertical-orientation specimens

2 HELB Chambers (I & J)

- 50 psi max pressure at 700°F max temperature
- 84" diameter × 6 ft long
- Designed for Advanced Reactor specifications

SYSTEM ENHANCEMENTS FOR NEXT-GEN PERFORMANCE

- New high-output boilers (3100 psig; 13,800 lb/hr flow)
- Steam accumulators for fast-ramp events
- Superheater (865°F nominal; adjustable to 1000°F)
- Improved steam coil heating for uniform chamber wall temperature
- High-speed adaptive control system that "learns" required ramp profiles for exact repeatability
- Integrated vacuum system to meet aggressive ramp requirements
- Submergence, chemical injection, and pressure-only testing available in all chambers



CONTROL ROOM BUILT FOR ACCURACY, TRANSPARENCY & SAFETY

- Dedicated control suite adjacent to the chamber room
- State of the Art Monitoring Systems for Each Chamber
- 400 instrumented channels per chamber.
- Customer witness space without operational disruption

WHY PARTNER WITH ELEMENT?

DEEP NUCLEAR & PQT EXPERTISE

Element Huntsville is one of the most comprehensive PQT and nuclear testing centers in the US, offering EMI/EMC, environmental simulation, dynamics, materials, and nuclear qualification under one roof.

WORLD-CLASS ACCREDITATIONS

- ISO/IEC 17025 (incl. calibration)
- ISO 9001
- 10CFR50 Appendix B

SPEED, RELIABILITY & CAPACITY

- Fastest turnarounds available for LOCA/HELB simulation
- Modernized facility reduces downtime and increases test repeatability
- Design eliminates the need for customers to invest in internal infrastructure

A PARTNER COMMITTED TO YOUR PROGRAM

Element is your committed partner in driving nuclear programs forward helping customers move faster, qualify with confidence, and stay aligned with evolving regulatory and industry expectations. From upfront planning to final reporting, our expertise ensures every test produces meaningful, defensible data that supports safe, compliant, and successful deployment. With our newly expanded Advanced Reactor test facility, we're strengthening the infrastructure needed to accelerate the next era of nuclear energy globally. Backed by unmatched experience and industry-leading capabilities, Element is the premier partner for AR developers, utilities, and OEM's shaping the future of clean, reliable power.

Ready to test your Advanced Reactor components with greater speed and certainty?

Contact Element Huntsville to schedule your program.

