

Demonstration Capabilities Area

Summary & Wrap Up

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Accomplishments from FY-25

- Development of a targeted Phenomena Ranking and Identification Framework to Pinpoint Critical Modeling, Simulation, and Engineering Needs for Heat Pipe Operation and Transient Studies
- Capability development for Gas Gap Calorimeter Sizing and Rating Tools for Experiment Design, enabling: reducing procedural uncertainties by predicting experimental conditions; enabling safer operation by prior estimates of surface temperatures and allowing more accurate calorimetry and better characterization of heat losses
- Utilizing Higher-Fidelity Models in Sockeye and Computational Fluid Dynamics for Studying Operational Transients in Heat Pipes With and Without Non-Condensable Gases and Validation Against Experimental Data
- Working close with DOE NEAMS program to support validation needs (startup behavior, long duration testing, supporting investigation of inactive phenomena, and more..)
- Deliver PCU Shakedown Test Plan
- Complete construction to integrate Power Conversion Unit
- Supporting collaboration with Universities, Industry and NRC

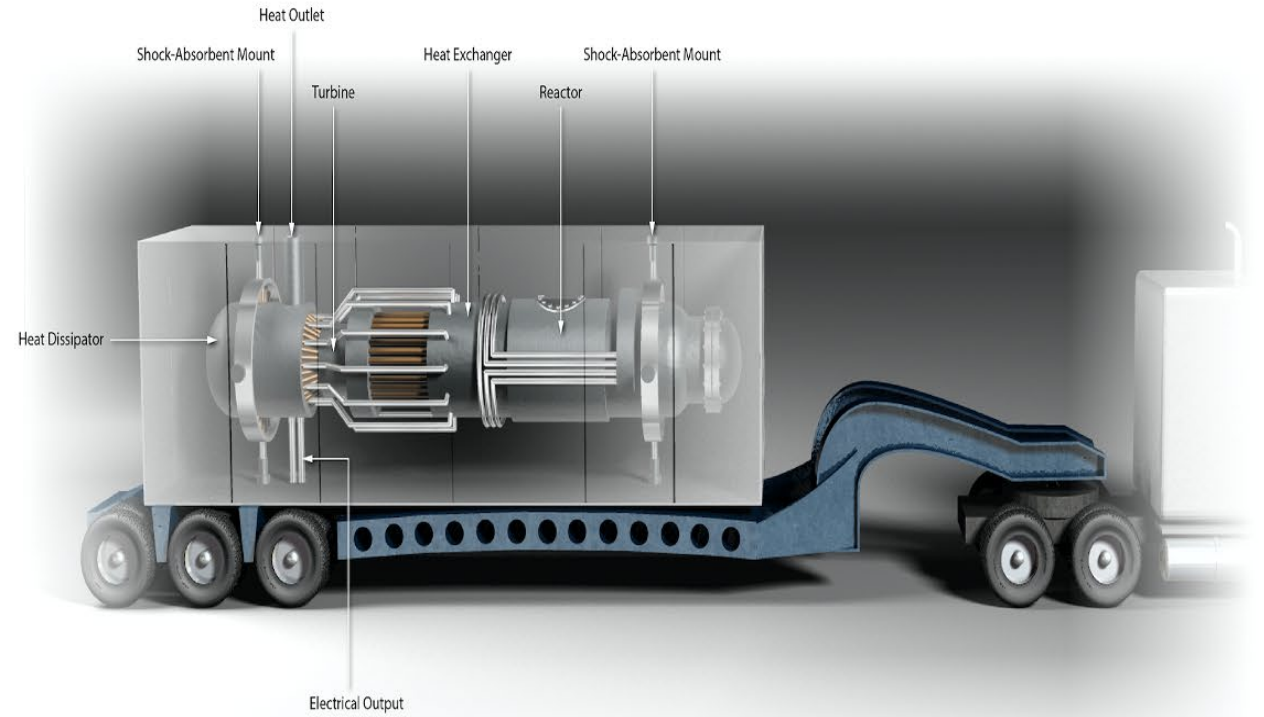
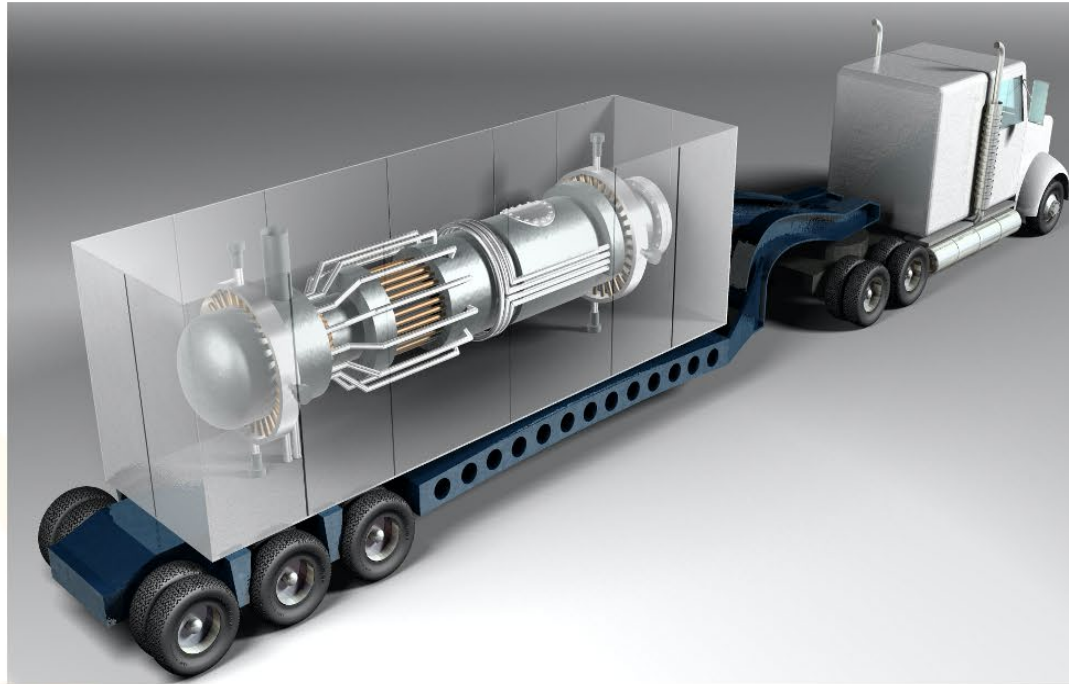


Demonstration Support Capabilities – Activities and Milestones for FY 26

- **SINGLE PRIMARY HEAT EXTRACTION AND REMOVAL EMULATOR (SPHERE)**
 - Complete testing on Los Alamos National Lab high-capacity heat pipes for steady state thermal heat transfer characterization (03/31/2026) – M3
 - Assess mid-year progress toward development of Best Estimate Plus Uncertainty methodology (04/22/2026) – M4
 - Develop methodology for interior measurements of vapor and liquid flows in heat pipes (09/16/2026) – M3
 - Develop Best Estimate Plus Uncertainty methodology for heat pipe characterization (09/16/2026) –M3
- **MICROREACTOR AGILE NON-NUCLEAR EXPERIMENTAL TESTBED (MAGNET)**
 - Complete Performance Testing of Electrically Heated, Graphite Core Assembly (03/01/2026) – M3
 - Complete PCU Shakedown Testing (03/31/2026) – **M2**
 - Perform TPMS HX Testing (03/26/2026) – M3
 - Validate Communications and Power Connections Between MACS, MAGNET, and MIB (06/04/2026) – M4
 - Demonstrate Power Production With Integrated MAGNET PCU, Microgrid, and Mobile Data Center (08/27/2026) – **M2**



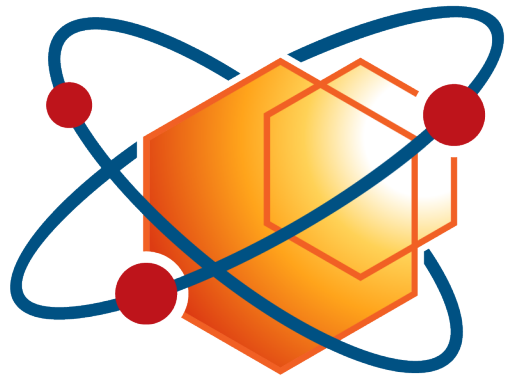
Thank You..!



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Credit
&
Acknowledgement





MRP Microreactor
Program