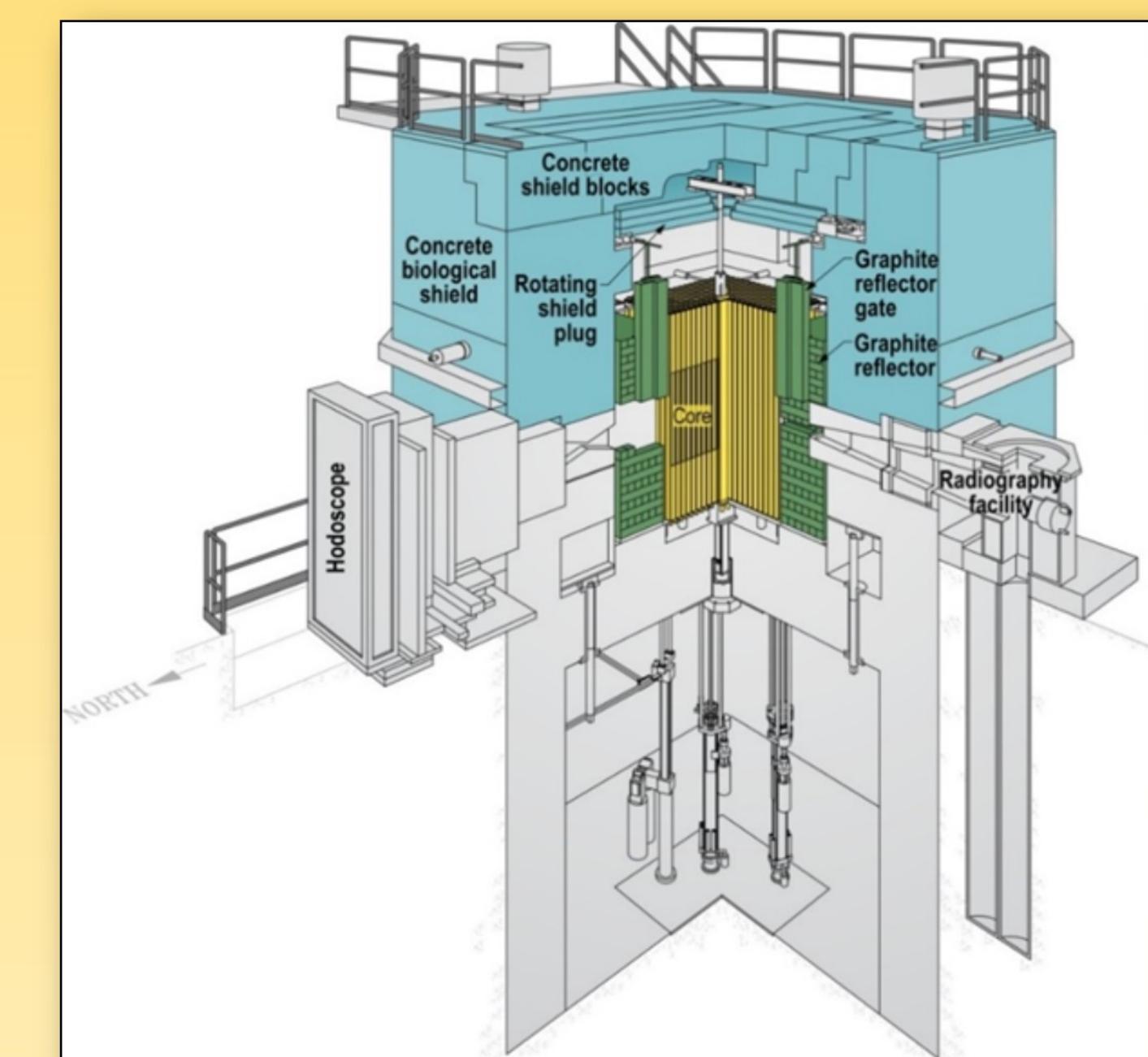
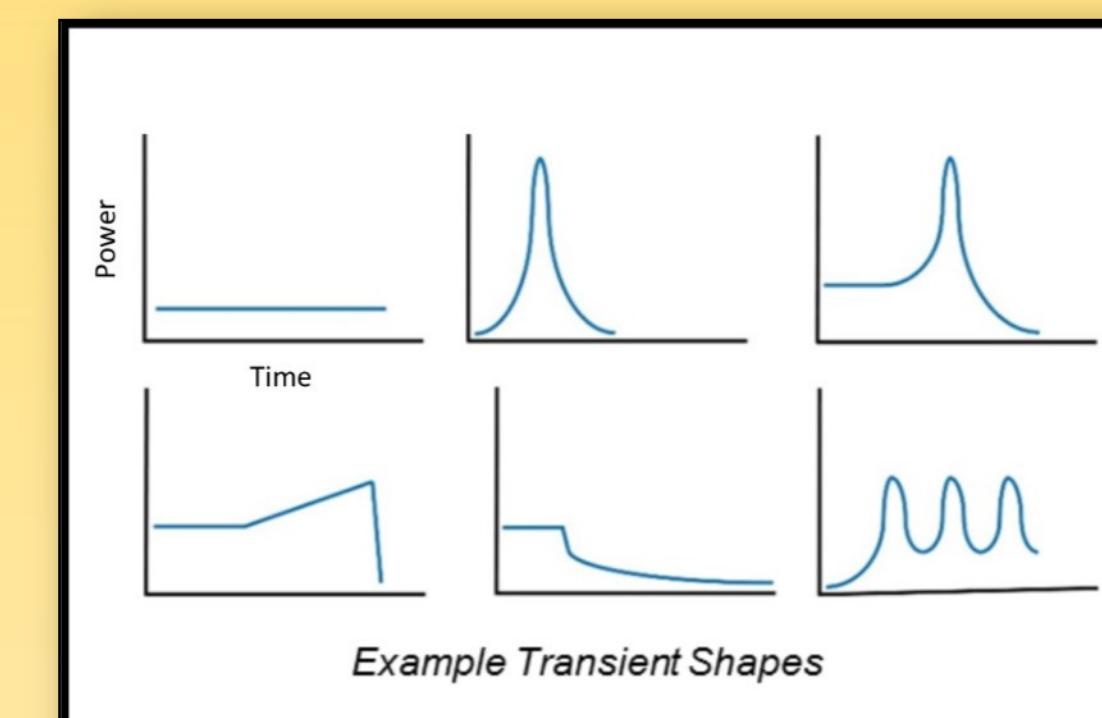


Static Capsules for TREAT Irradiations

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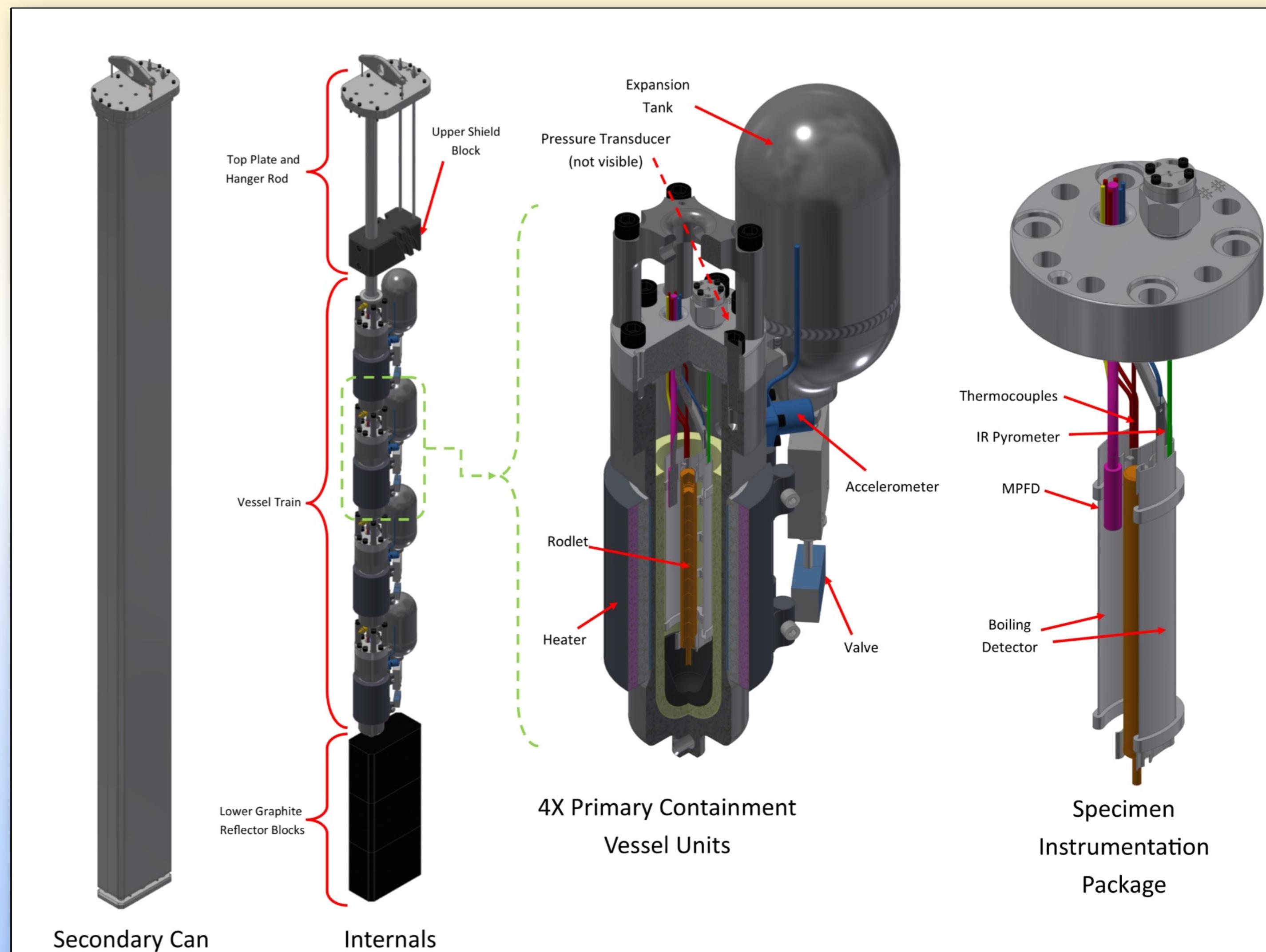
Overview

- The Transient Reactor Test facility (TREAT) provides neutron irradiation with flexible power maneuvering
- Experiment vehicle (capsule, loop, etc.) does the rest:
 - 1) Provide specimen boundary conditions
 - 2) Safely contain hazards
 - 3) Support specimens and in-situ instrumentation
- Static capsule designs planned for initial TREAT tests



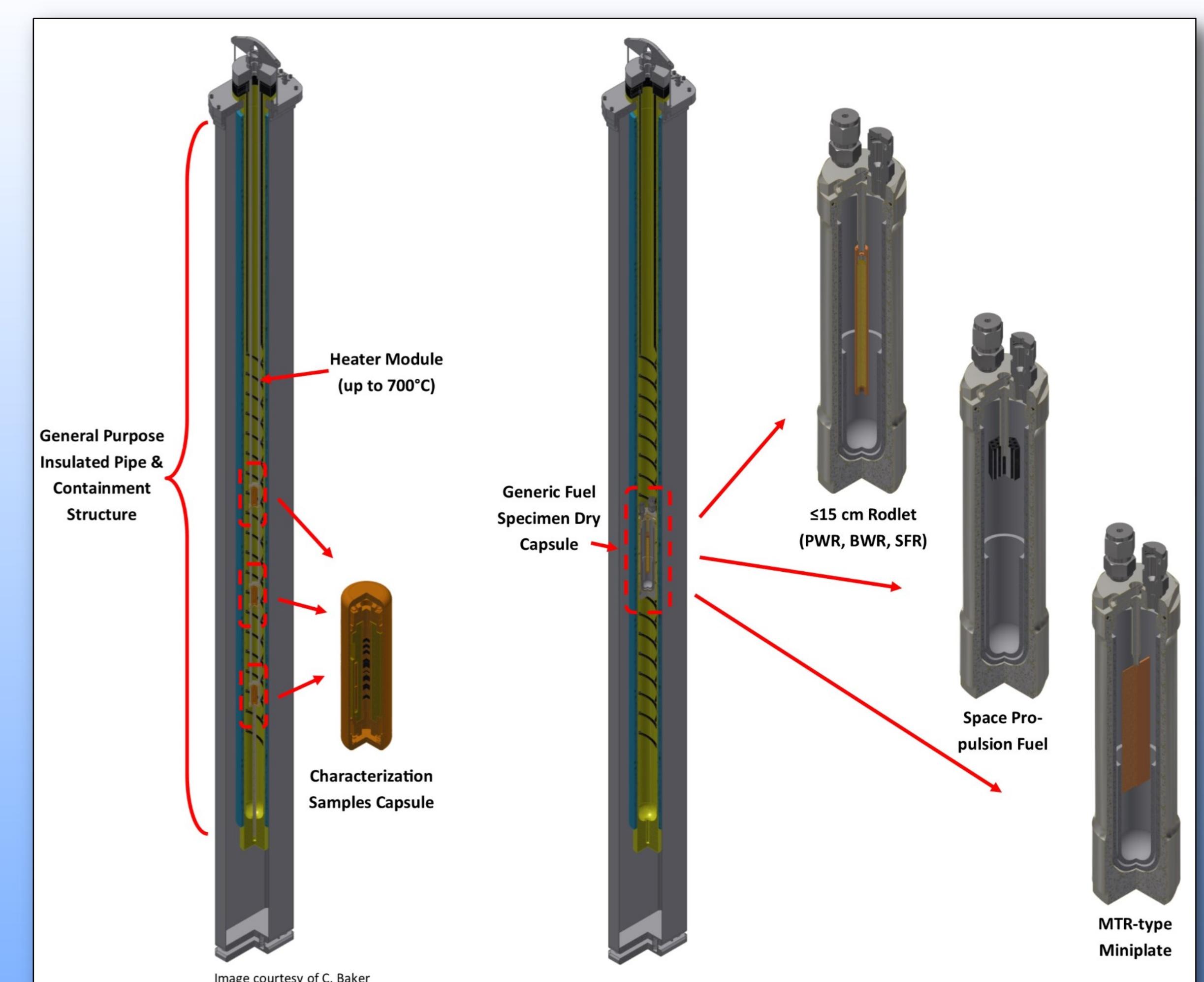
Multi-SERTTA

- Multi Static Environment Rodlet Transient Test Apparatus (Multi-SERTTA)
- Four simultaneous rodlets in static PWR water (280°C, 15.5 MPa)
- Adaptable instrument/specimen holder for other specimen types
- Adaptable for use with inert gas or steam (and possibly sodium)

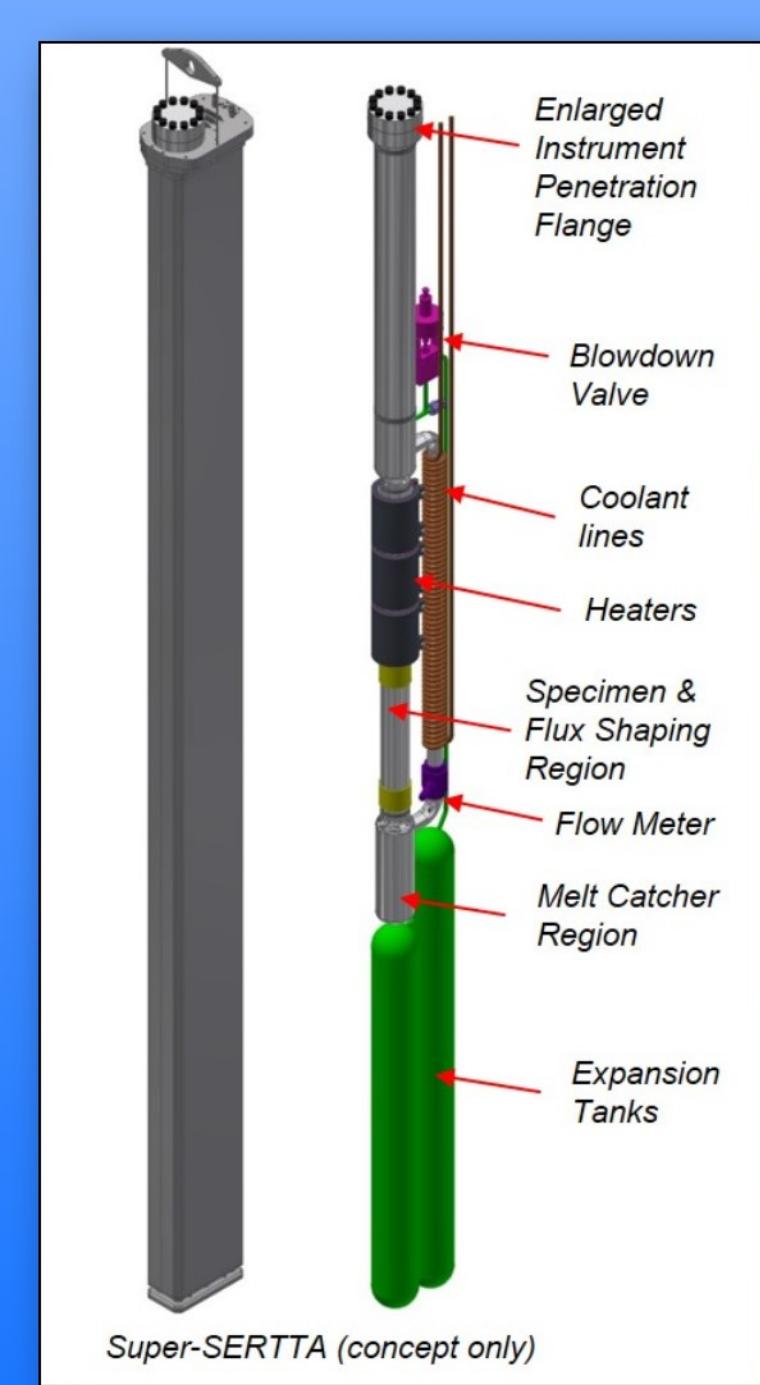


MARCH

- Minimal Activation Retrievable Capsule Holder (MARCH)
- Small samples, brief irradiations, and low-activation materials
- 1) Post-irradiation examination (PIE) within weeks of test
- 2) Simplified post-test shipment, enables glove-box PIE
- 3) Reusable hardware
- Ease in instrumentation penetration
- Accepts fuel (including Pu) size from TEM disc to 15 cm rodlet
- Broadly applicable experiment safety envelope

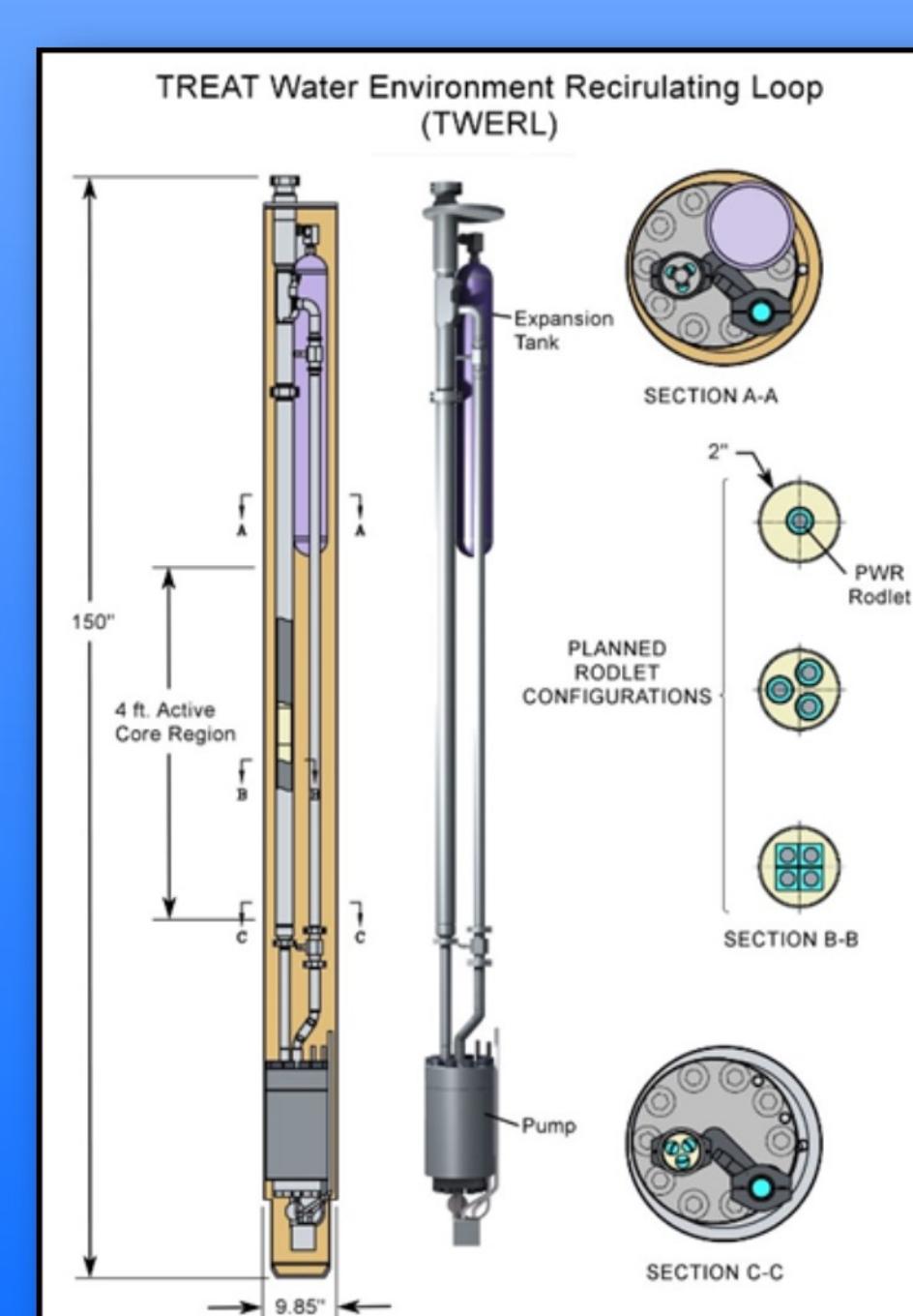


Future Capabilities



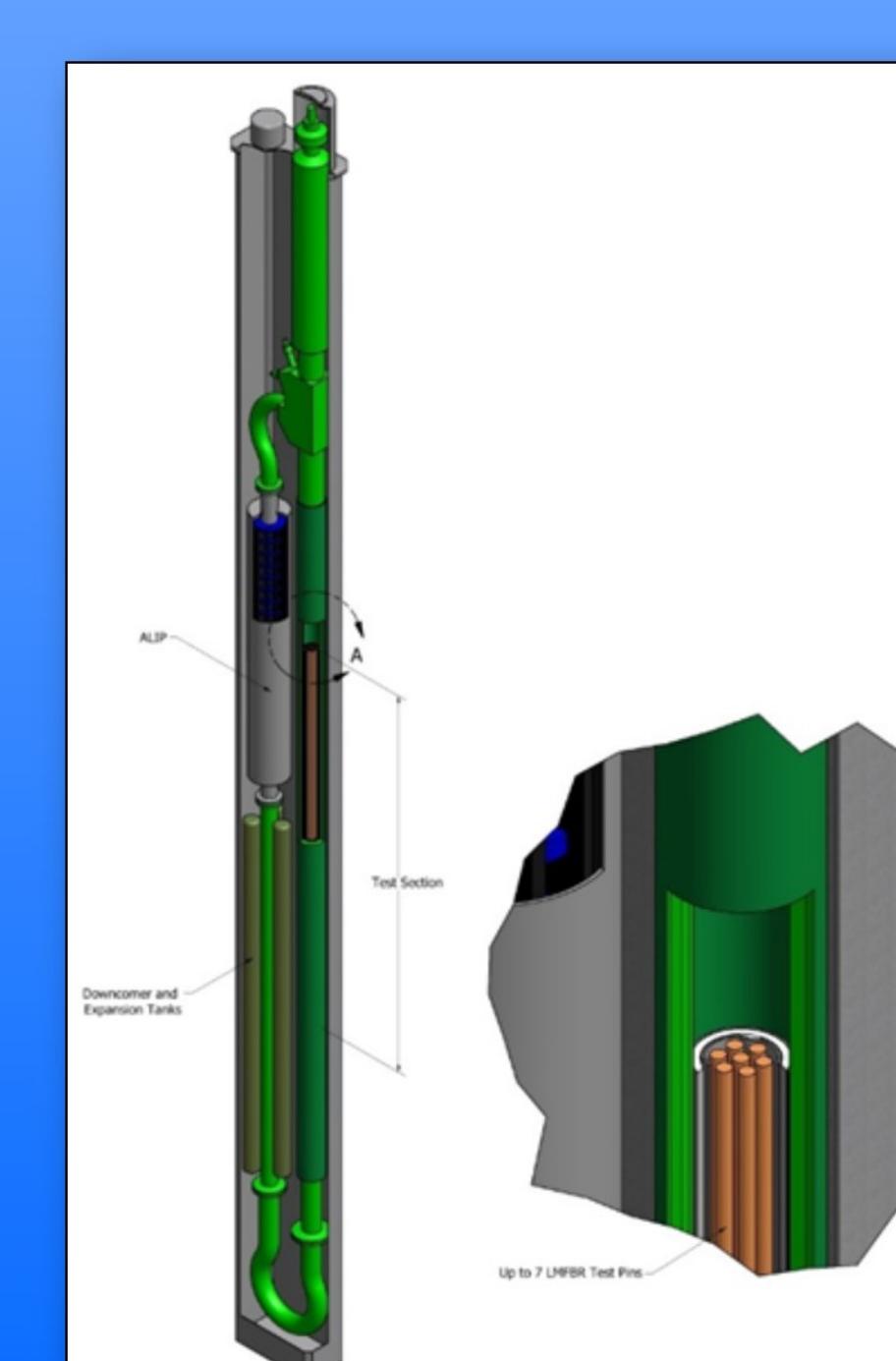
Super-SERTTA

- Enhanced natural circulation
- Larger specimen
- Highly instrumented
- Blowdown capability



Water Loop

- Full forced convection
 - Highly instrumented
 - Rod or bundle testing
- (TREAT can drive high burnup 9-rod PWR bundle to current regulatory limits)



Mk-IV Sodium Loop

- Full forced convection
 - Modernized historic design
 - Highly instrumented
 - Pin or bundle testing
- (Up to 7-pin bundle)