

# **MeV School Presentation - ATR Experiment Overview**

Megan A Dempsey

July 2020



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operated by Battelle Energy Alliance

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**July 2020**

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Idaho Falls, Idaho 83415**

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MeV

Modeling • Experimentation • Validation

SUMMER SCHOOL

[www.MeVSchool.org](http://www.MeVSchool.org)

# Advanced Test Reactor Experiment Overview

**Megan Dempsey**

**Experiment Engineer  
Advanced Test Reactor**

July 30, 2020

10:30-11:15 MDT

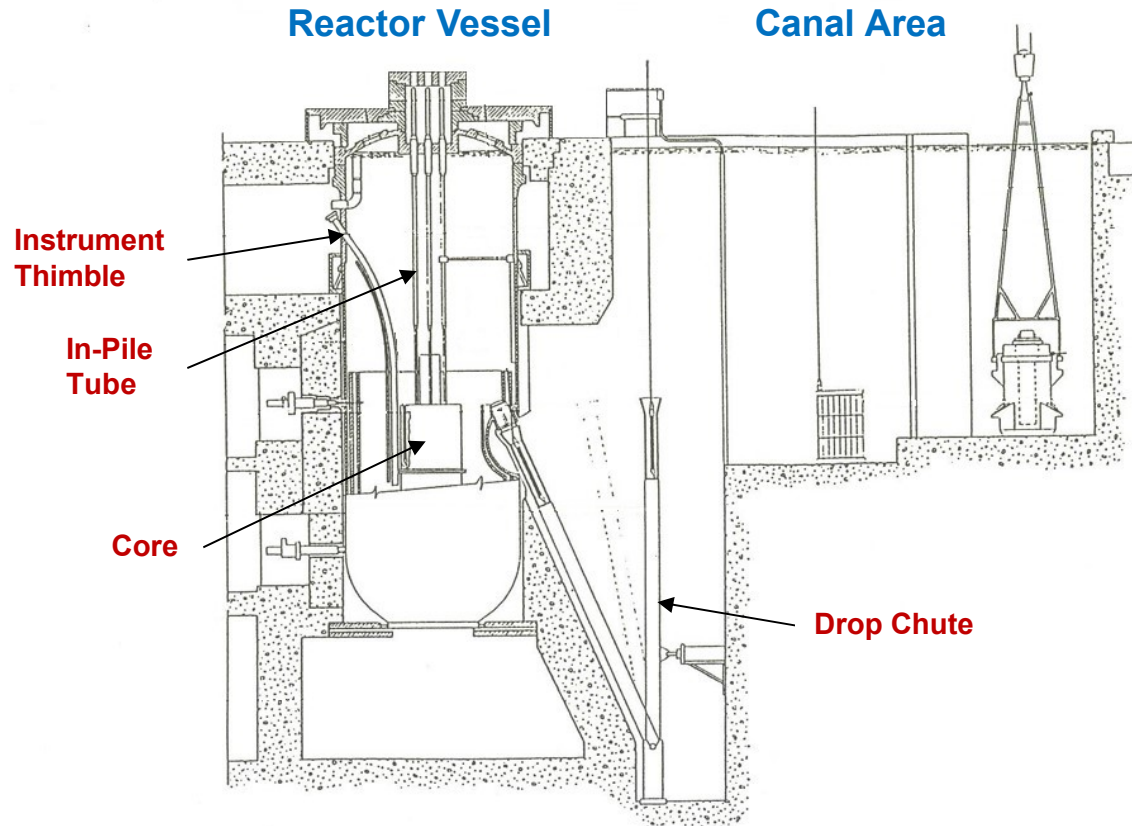
# Outline

- Reactor Vessel/Canal Layout
- Experiment Positions
- Experiment Types
  - Drop-in
  - Lead-out
  - In-pile Tube

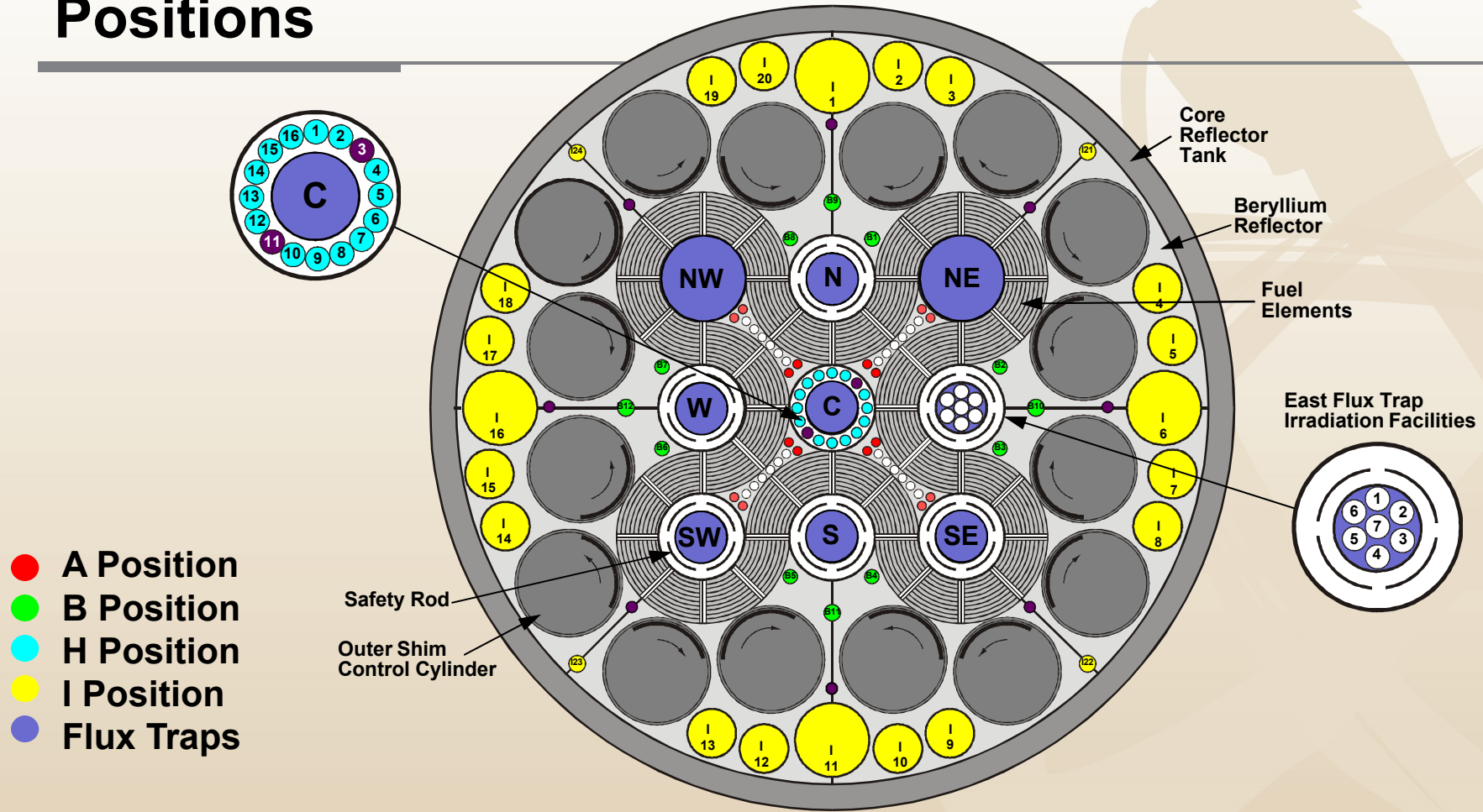




# Reactor Vessel

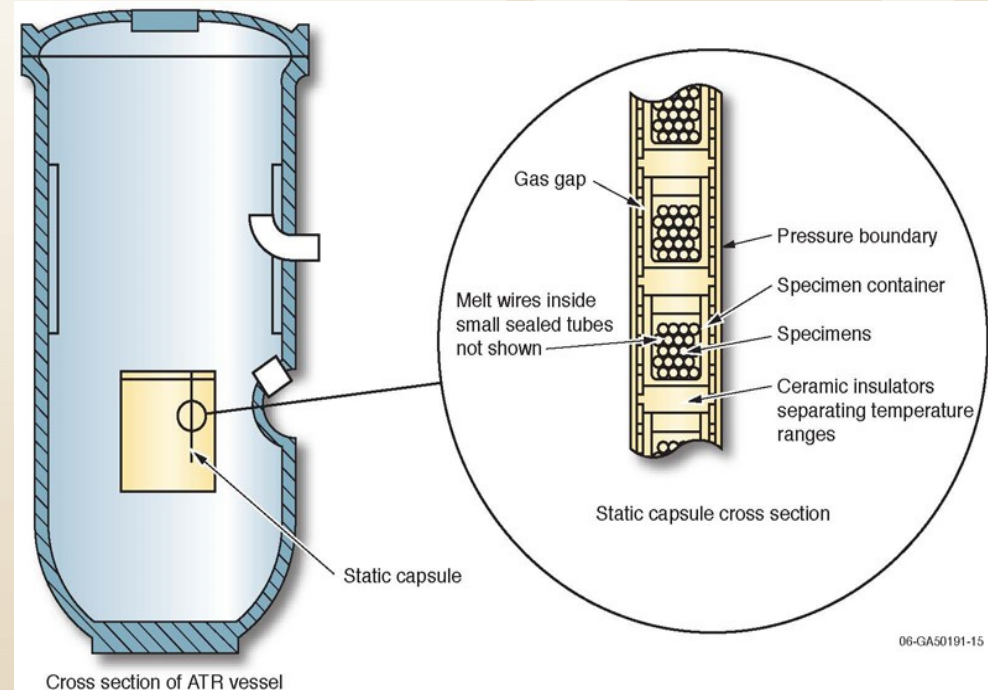


# Experiment Positions

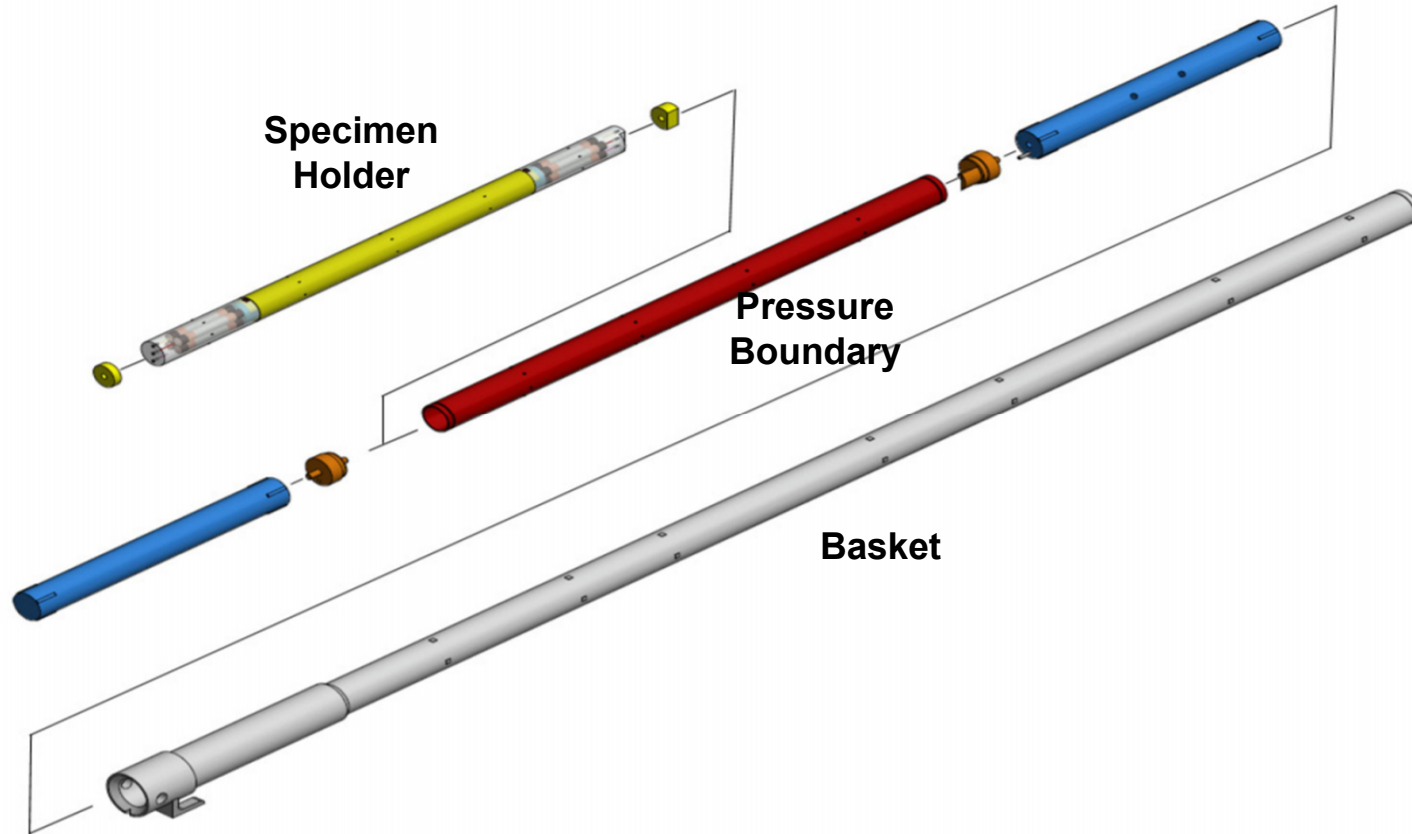


# Drop-In Capsule Experiment

- Directly cooled by reactor primary coolant system
- No dynamic control of test conditions
- No real time experiment data collection

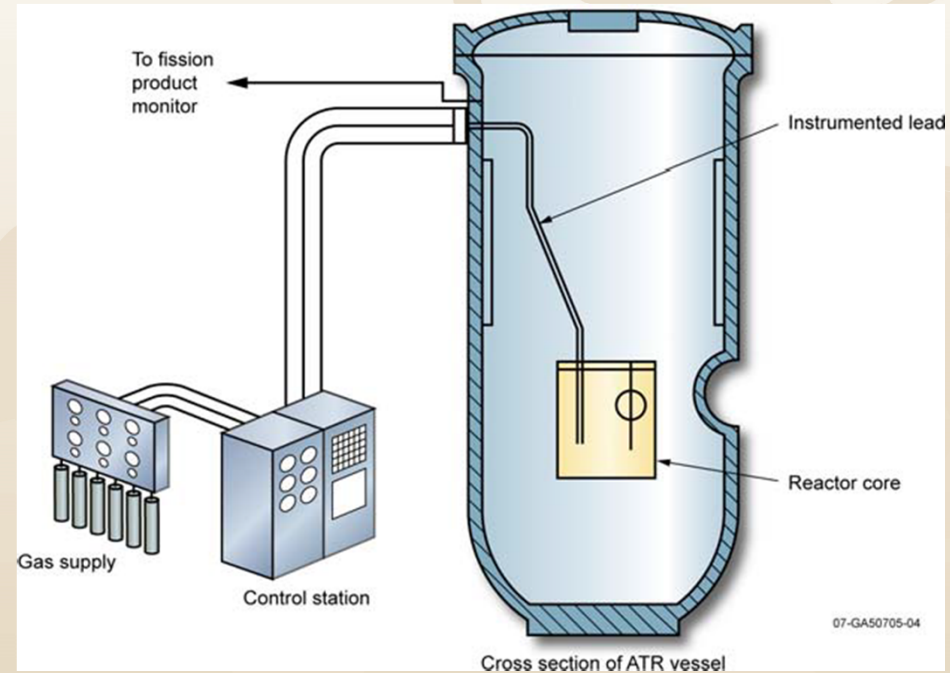


# ATAMM (Drop-In Experiment)



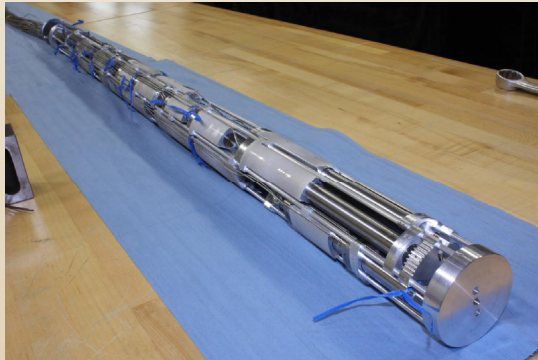
# Lead-Out Experiment

- Test assembly contacts the reactor primary coolant system
- Lead tubes attached to the test carry instrument wires, temperature control gases, etc. in and out of the reactor vessel
- Active control of test conditions
- Real time data collection

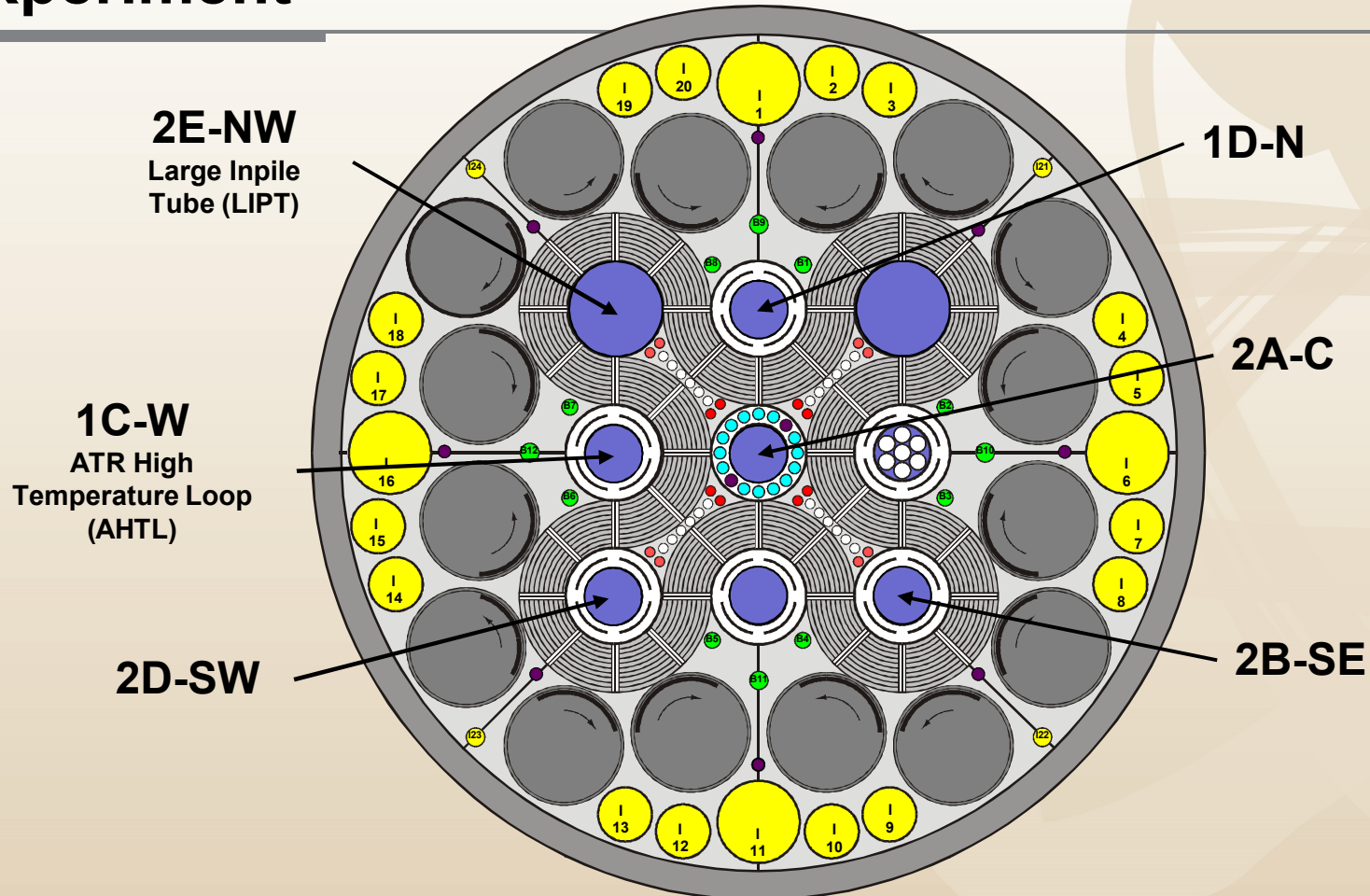




# TMIST-3 (Lead-Out Experiment)



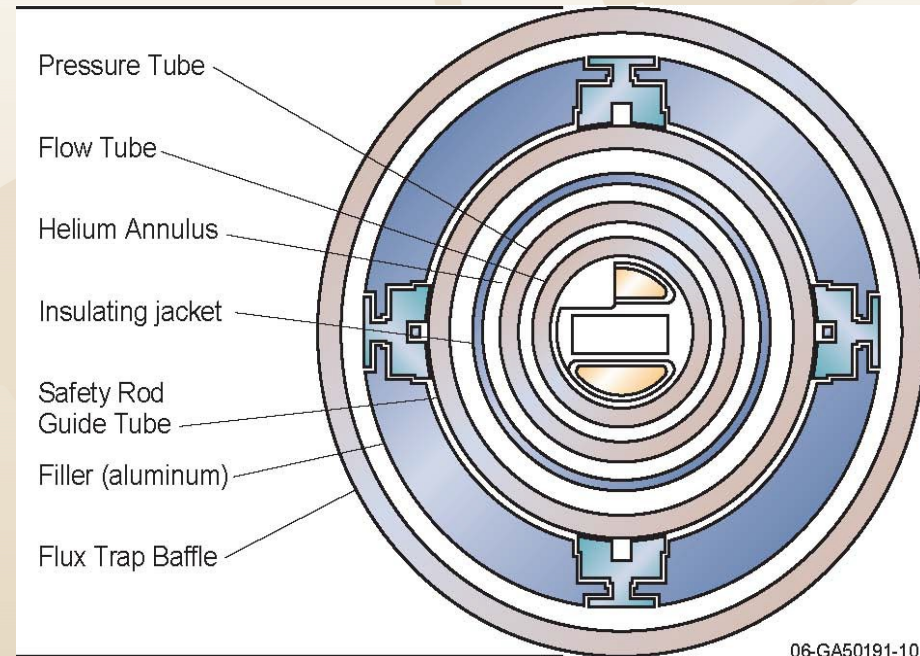
# In-Pile Tube (IPT) Experiment



ATR Experiment Overview

# IPT/Loop Experiment

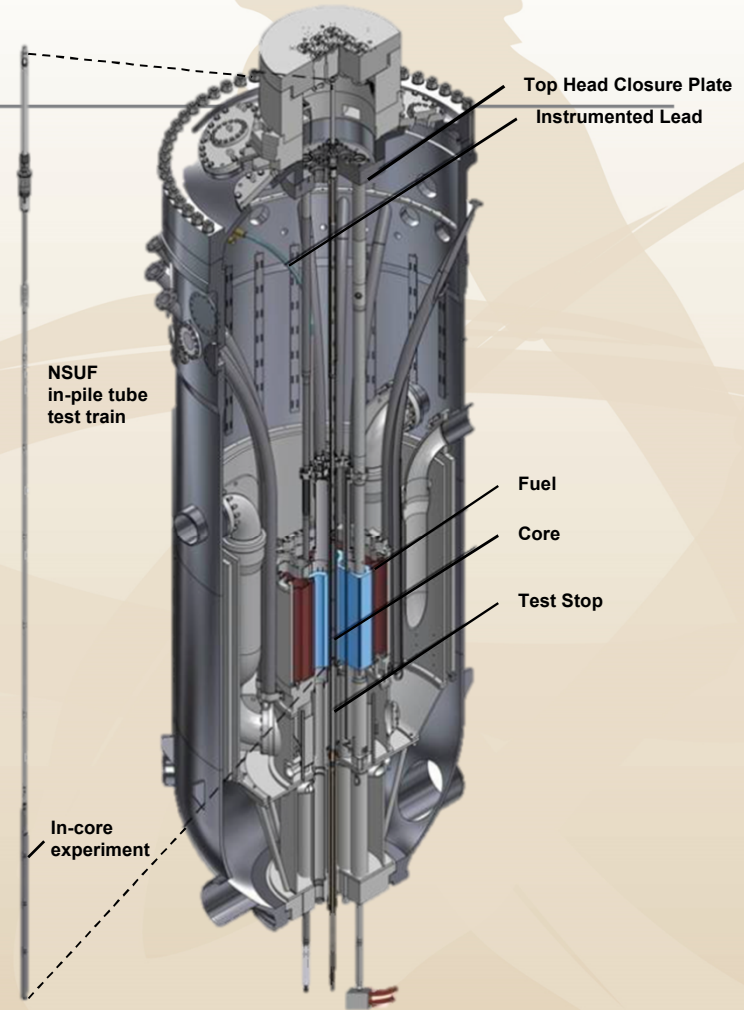
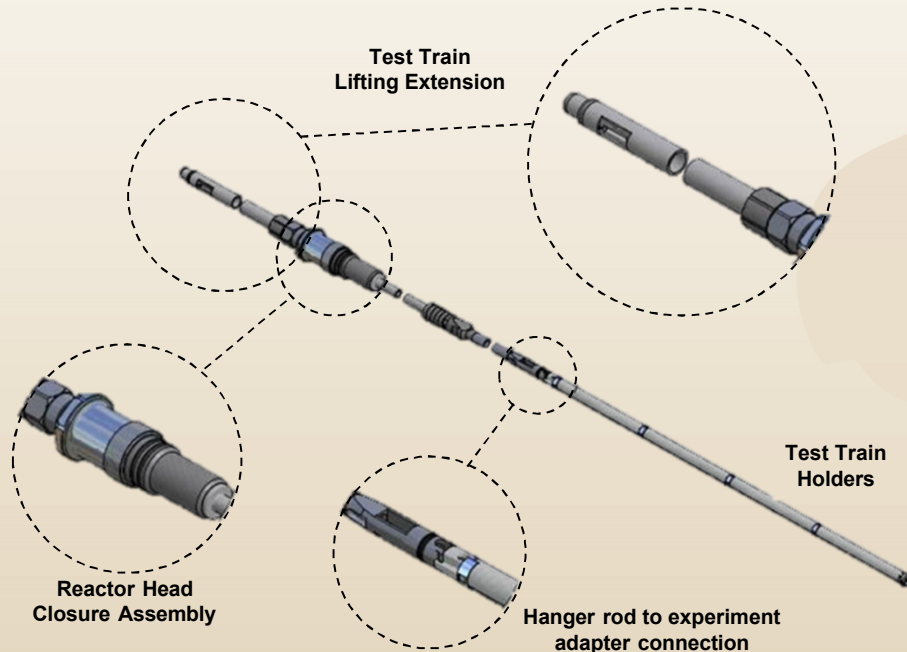
- High neutron flux region
- Equipped with a pressurized water loop system independent of the reactor primary coolant system
- Real time monitoring and control of loop conditions
- Independent control of temperature, pressure, coolant flow, and water chemistry for each IPT experiment





# IPT Experiment

## TEST TRAIN COMPONENTS



# Summary

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- Reactor Vessel/Canal Layout
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