



# PCAT: Mechanical Fabrication, Electrical I&C

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## Addition of Spacer Wires to Cartridge Heaters

- Changed design to incorporate spacer wires in place of a wire wrap. This addition included 720 additional welds.



## Assembly and Testing of Core

- Final assembly and testing of Core. This included helium leak tests of all welds and functional/megger checks of the heaters.



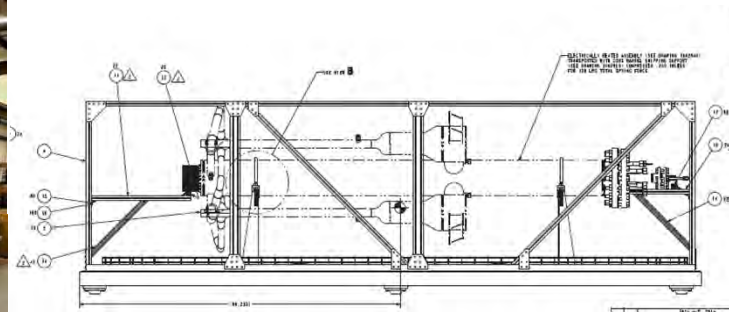
# Testing of Core/Heat Exchanger/Downcomer Weldment

- Completed successful helium leak testing of all welds. This weldment is now staged for final assembly and shipping.



# Fabrication of PCAT Transport Assembly

- Completed the fabrication of the PCAT Transport Assembly in collaboration with subcontracting partners.



## Proposed Activities in the Next 2-3 Weeks

- Administrative Closeout of Fabrication Packages
  - Reconciliation of sprint method with Fabrication Procedure
  - Expected to be completed with this effort in two weeks
- Final Assembly of MARVEL PCAT
  - Installing and welding in Core, welding of downcomers, welding support brackets and thermowells, final testing of PCAT
  - Quality acceptance of MARVEL PCAT

## Electrical system installation at alkali metals facility



# Software

The software interface is divided into several sections:

- STOP** button at the top left.
- Navigation tabs: **MAIN**, **HEATER**, **STIRLING**, **DOWNCOMERS**, **CORE BARREL**, **DAQ**.
- ENGINE CONTROL** section, containing four engine panels (ENGINE 1 to ENGINE 4). Each panel includes:
  - TEMP** and **TEMP SETPOINT** controls.
  - ENABLE** button.
  - AUX POWER OUT** section with **POWER**, **VOLTAGE**, and **CURRENT** displays.
  - MIN POWER SETPOINT** control.
  - SET** button and **BRAKE POWER ABSORPTION** section with **POWER**, **VOLTAGE**, and **CURRENT** displays.
  - PISTON AMPLITUDE** control.
- ENGINE COOLANT SYSTEMS** section, containing:
  - ENGINE COOLANT PUMP ON/OFF AND STATUS** section with buttons for ENGINE 1, 2, 3, and 4 COOLANT PUMP, each with a status indicator.
  - ENGINE COOLANT FAN ON/OFF AND STATUS** section with buttons for ENGINE 1, 2, 3, and 4 COOLANT FAN, each with a status indicator.
  - ENGINE COOLANT FLOW** section with displays for ENGINE 1, 2, 3, and 4 COOLANT FLOW.
  - Unit indicator: **m/s?**
- Warning text: **DISPLAY RED WHEN OVERTEMP** and **WHEN TEMPERATURES ARE ABOVE THRESHOLD, PUMP AND FAN STAY ON REGARDLESS OF USER INPUT**.



# Nak Flow meter calibration

Document ID: SPC-70388  
Revision: C.2  
Effective Date: 10/17/22

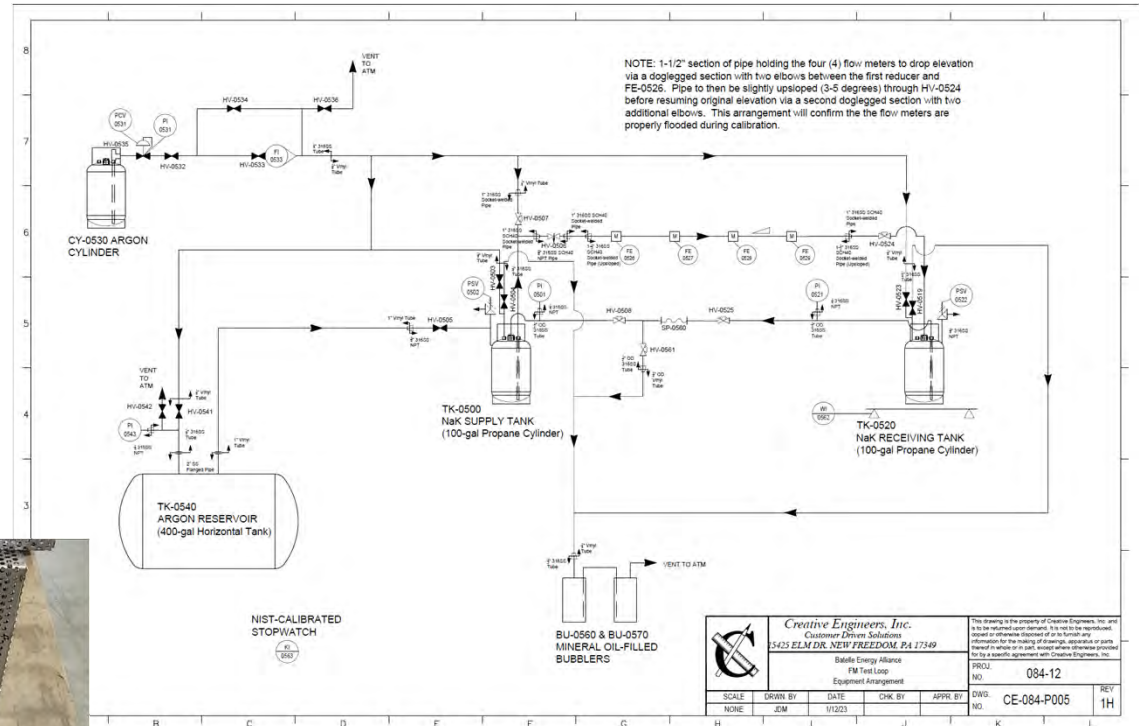
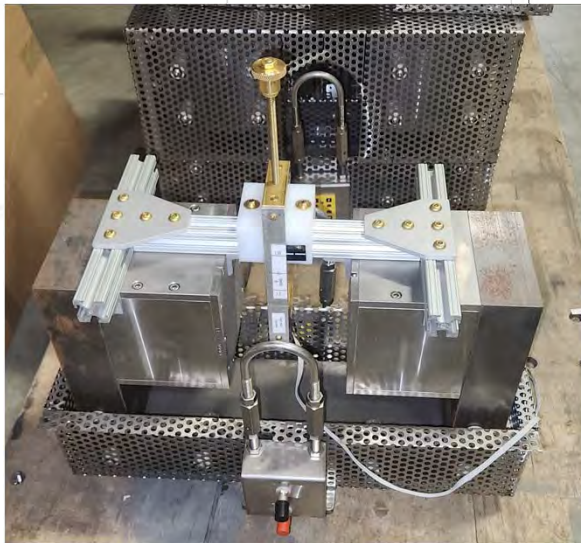
## Specification

Project No. 33526  
EC No. 2339

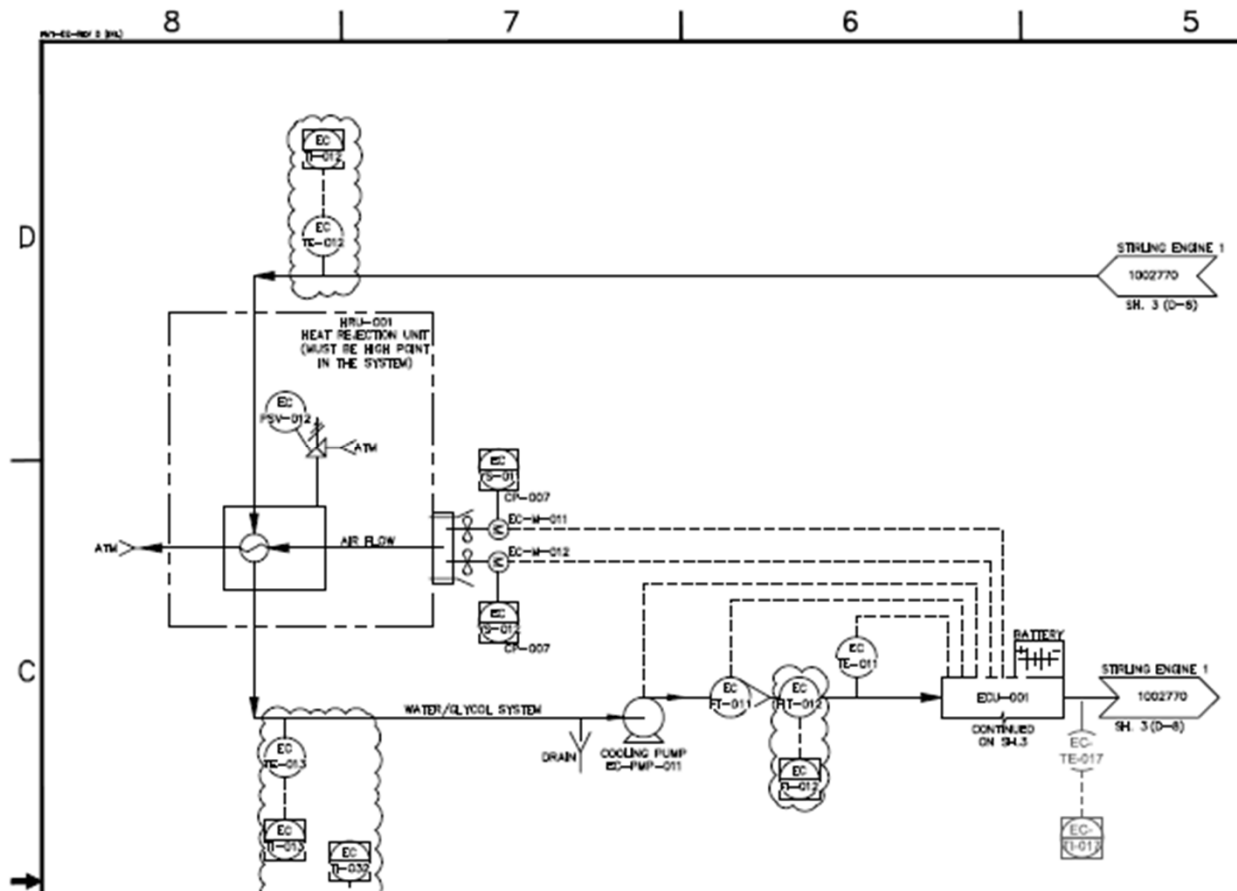
## PCAT Calibration Requirements



The INL is a U.S. Department of Energy National Laboratory operated by Battelle Energy Alliance.



# Power Calculation Instrumentation





**MRP** Microreactor  
Program