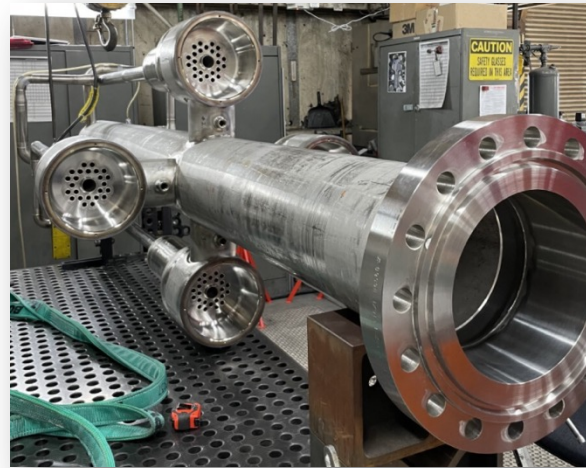


PCAT Mechanical Status

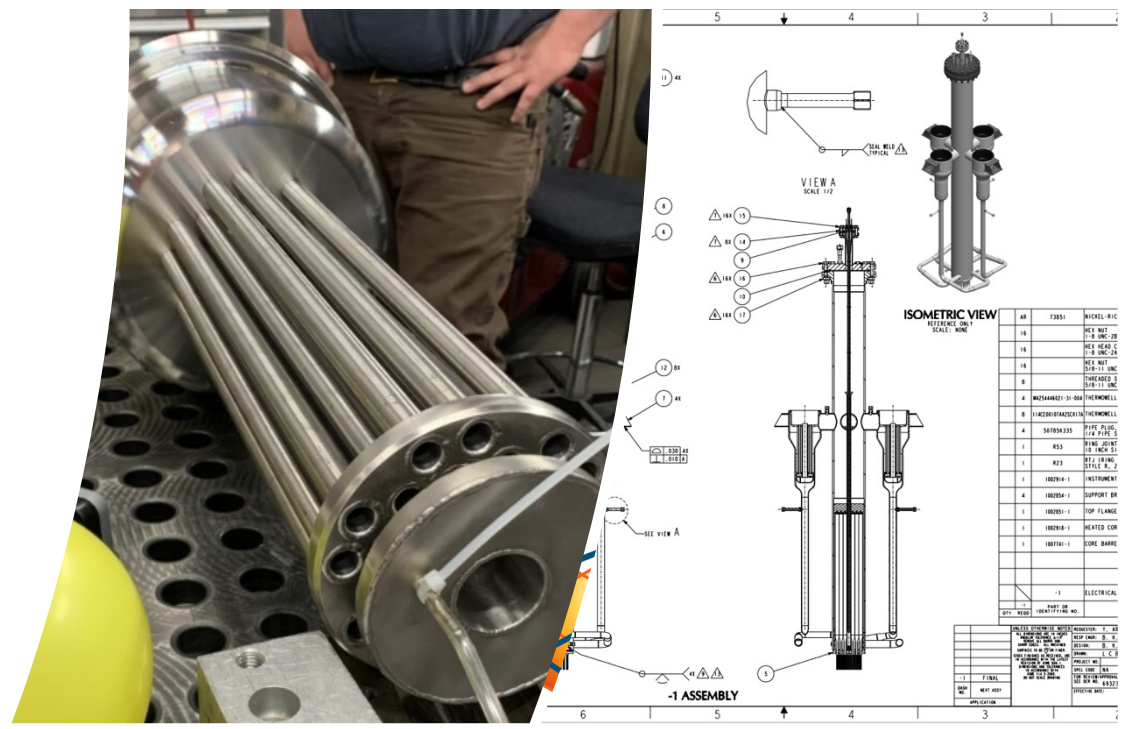
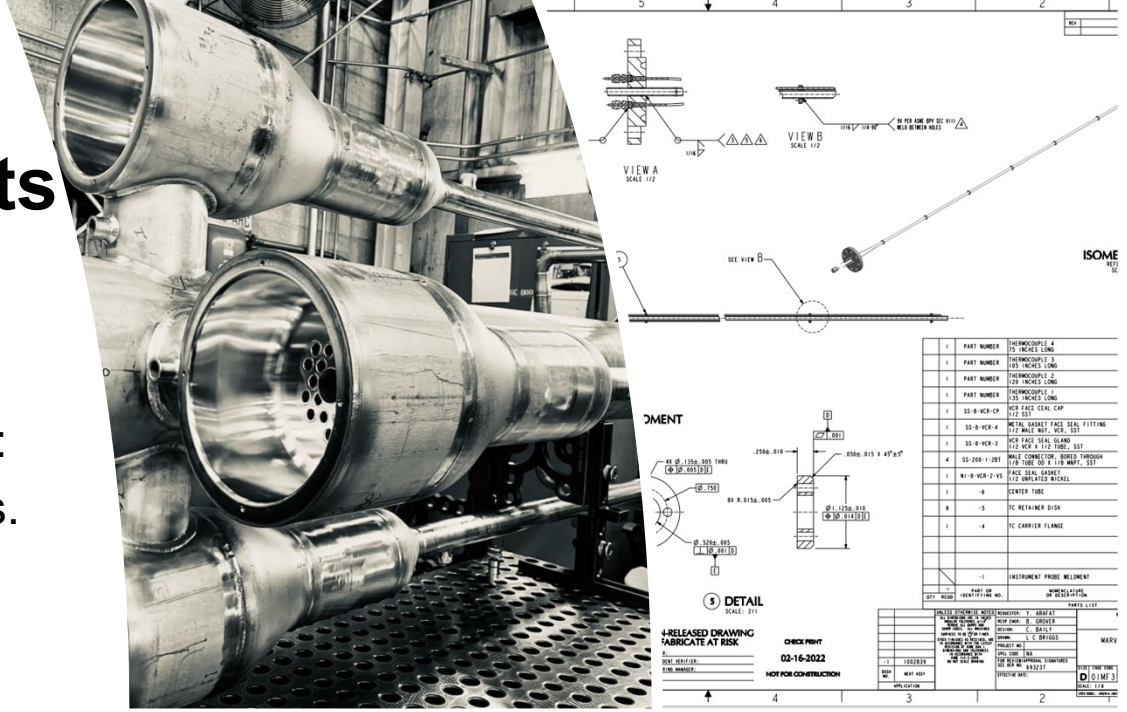


Blair Grover
PCAT Lead Mechanical Designer
March 4, 2022



PCAT Mechanical Accomplishments and Status

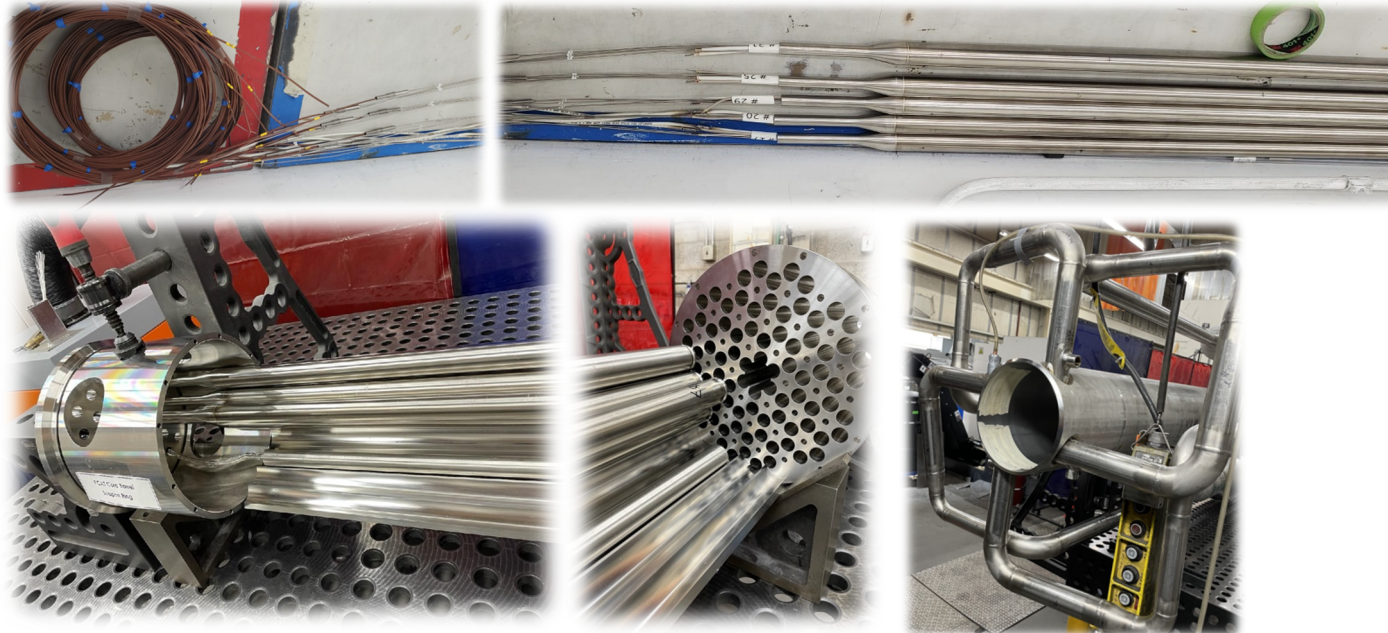
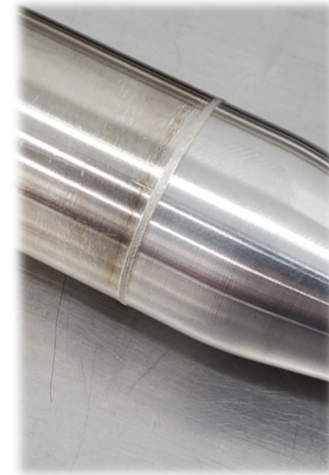
- **Completed technical efforts**
 - INL Fabrication Top level PCAT assembly details:
 - Assembly, inspection and testing requirements.
 - Central instrument probe designed for temperature measurement of NaK.
 - Construction field changes incorporated into drawings.
 - Updated F&OR document.
 - Conceptual design of a Transport Assembly and vessel aids.
 - PCAT Assembly at Subcontractors Facility drawings and details started.
 - Design review of PCAT documents scheduled in March. Drawings and Analyses.
 - Draft Experiment Plan



PCAT Mechanical - Heated Core Status

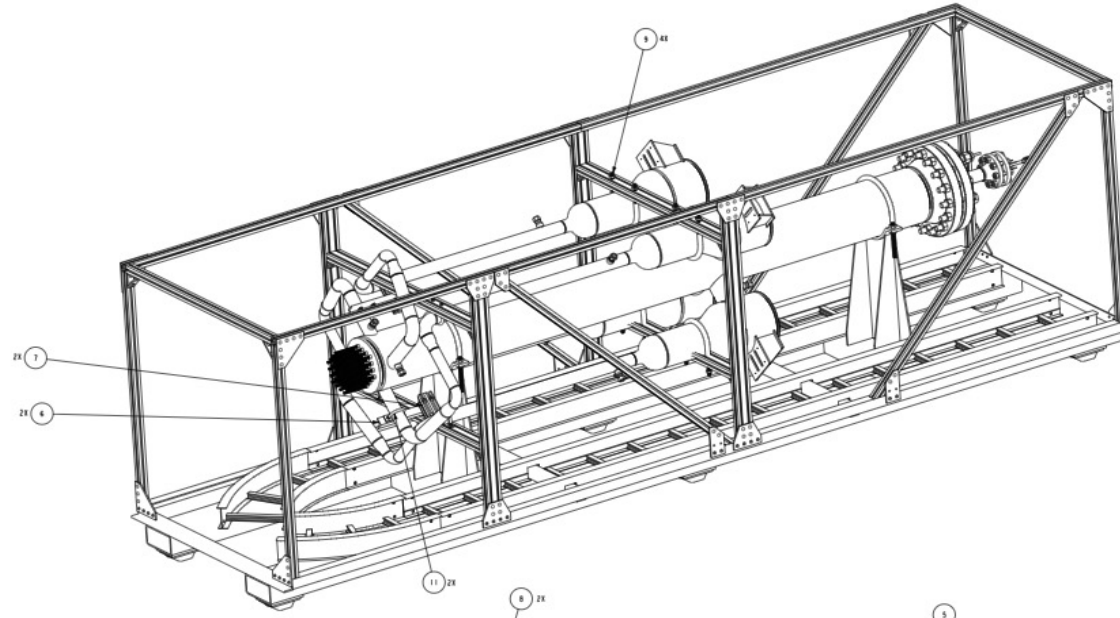
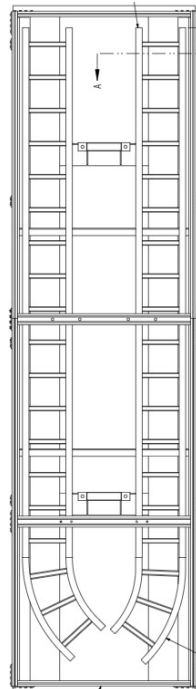
- **Cartridge heater/cladding assembly**

- Subcontract for thermocouple fabrication, cartridge heater instrumentation and potting heater into cladding underway.
- INL has received 10 cladding assemblies for installation of top plug, final functional inspection, and welding to PCAT bottom tube sheet.
- Challenges – Straightness of cladding assembly.



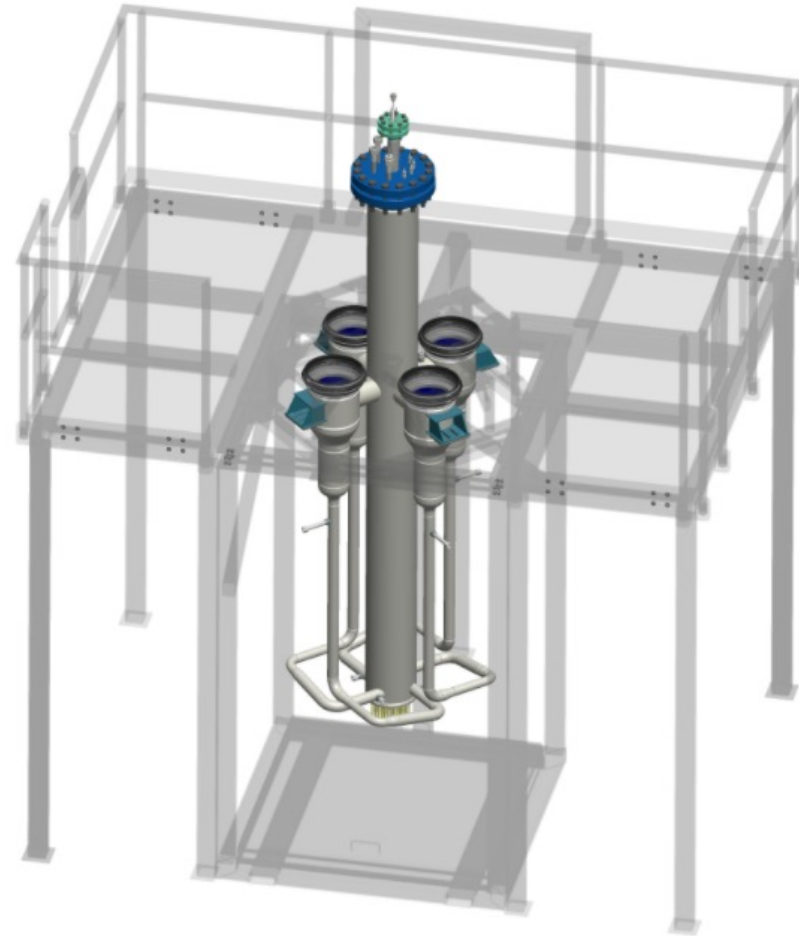
PCAT Transport Assembly

- **Conceptual design for Transport Assembly of PCAT to CEI**
 - Fabrication Drawings are being developed from model shown.
 - Material take offs for purchasing underway.
 - Fabrication of assembly will begin and be completed prior to PCAT Heated core completion.
 - Transport assembly will be useful for PCAT inspections – Leak & Pressure testing.
 - Features incorporated for wiring of cartridge heaters and Thermocouples



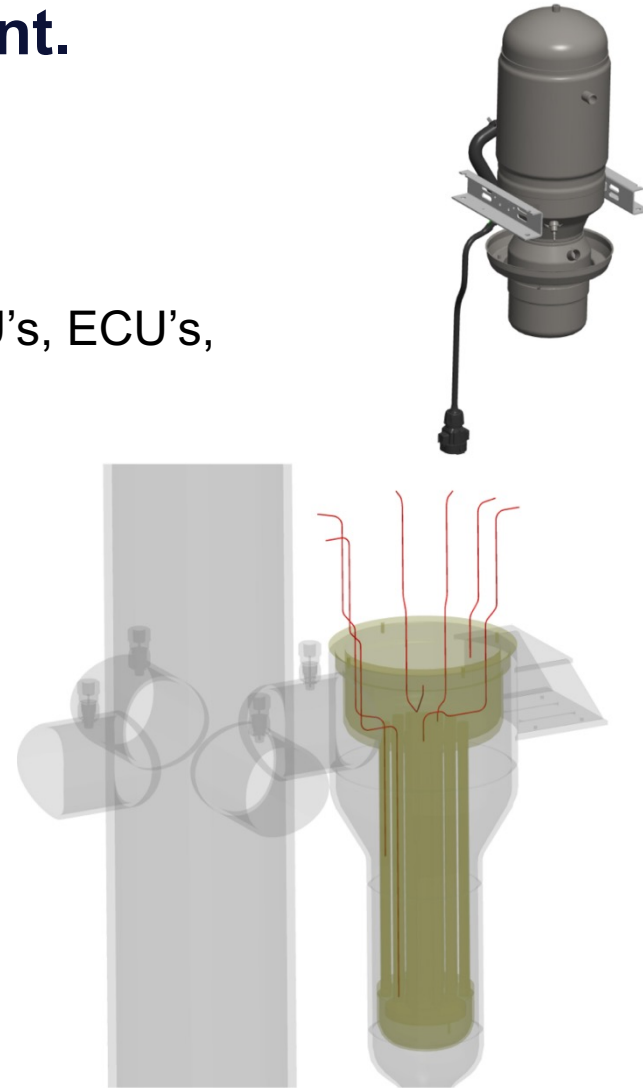
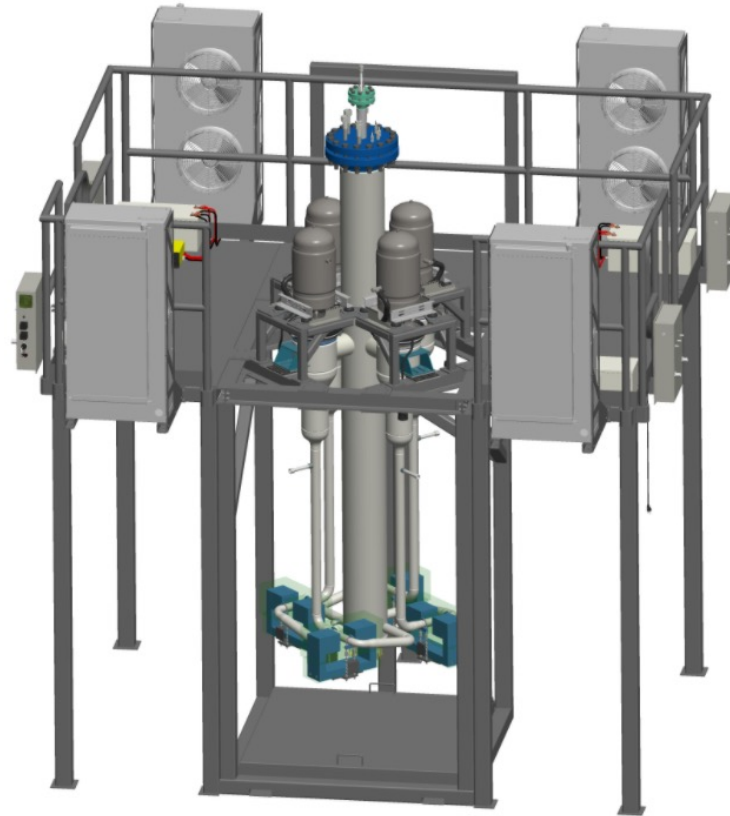
Mechanical Assembly Activities at CEI

- Construction of the Support Structure has already taken place at CEI.
- Remove the PCAT from the Transport Assembly and install into Support Structure.
- Drawings are being developed to install PCAT into Support Structure. Drawings will be supplemented with a SOW outlining activities required.
 - Alignment of PCAT to support structure for interfaces of the Stirling engines are important.
 - Secure PCAT to Support Structure through slotted supports from IHX.



Mechanical Assembly Activities at CEI – Cont.

- Installation of the Flow meter on the down comer piping.
- Installation of the Thermocouples into the IHX, 6 each IHX.
- Install support systems for the Stirling engine systems, HRU's, ECU's, pumps, batteries.
- Cover gas system.
- Level probes



PCAT System Configuration - CEI

