260-L LAr System Progress Report

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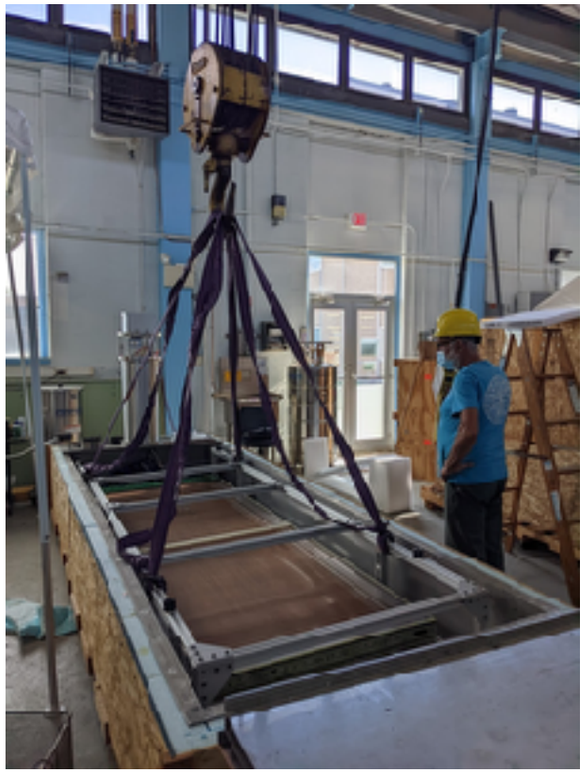
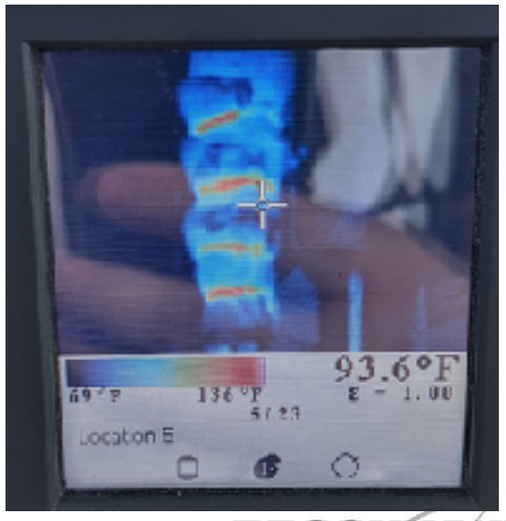
Lab Safety and Space Management

- **Lab space management**
  - Space cleaned up for the new cold box
  - 40% APA was moved back to the shipment box
  - Attempted to the move to the far end storage cage of Bldg 510, jammed at one door
  - Lab rigger is called to move it from the outside
  - 40% APA is now sitting in near the stock room, Augie will continue when he returns from CERN in 2 weeks
- **Lab Safety Reminders**
  - Watch out for the interns and summer student
  - Follow the COVID rules, currently requiring face-mask onsite



260-L Purifier Activation System

- **Activation system with heating completed**
  - 3x thermal couples on the cylinder for activation, 1x RTD for DAQ monitoring for cryogenic operation
  - The system can be heated up to the designated temperature ~200-240C
  - Heating turned on manually for a test run with pure GAr
  - Control program in progress



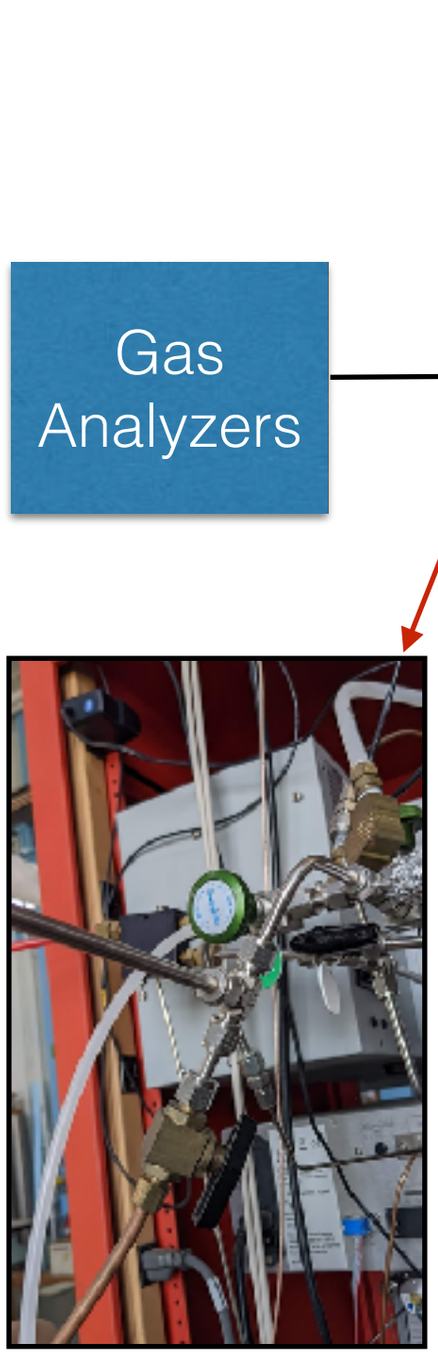
260-L Purifier Activation System

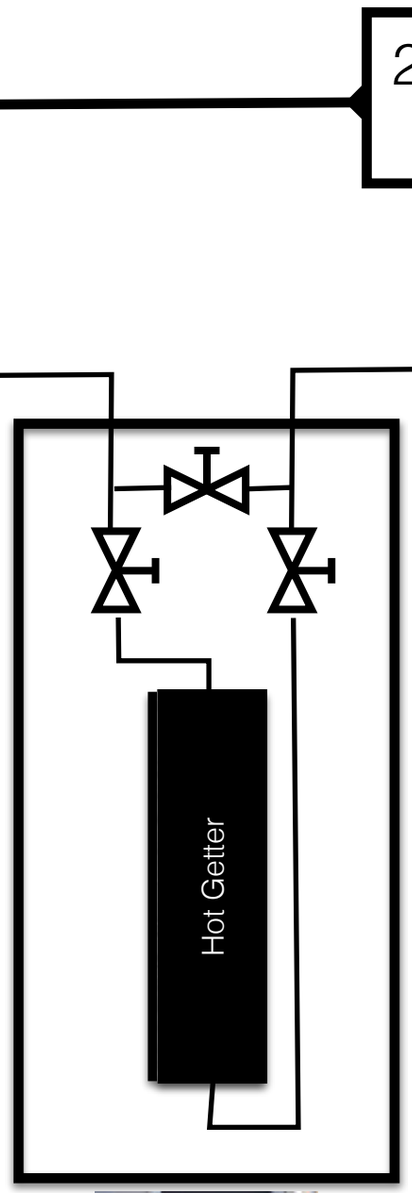
- **Significant water condensation observed at the flow meter**
  - It is caused by the condensation in the coil tube going up back flowed
  - Disassembled and dried the flowmeter and tubing
  - Change the coil to transparent going downwards to avoid the situation

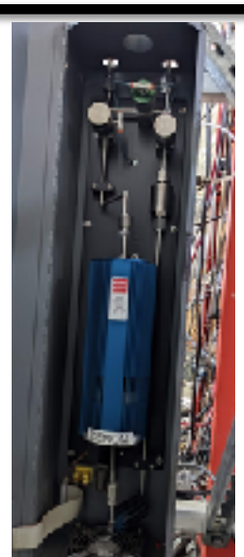
Gas analyzer plumbing modification

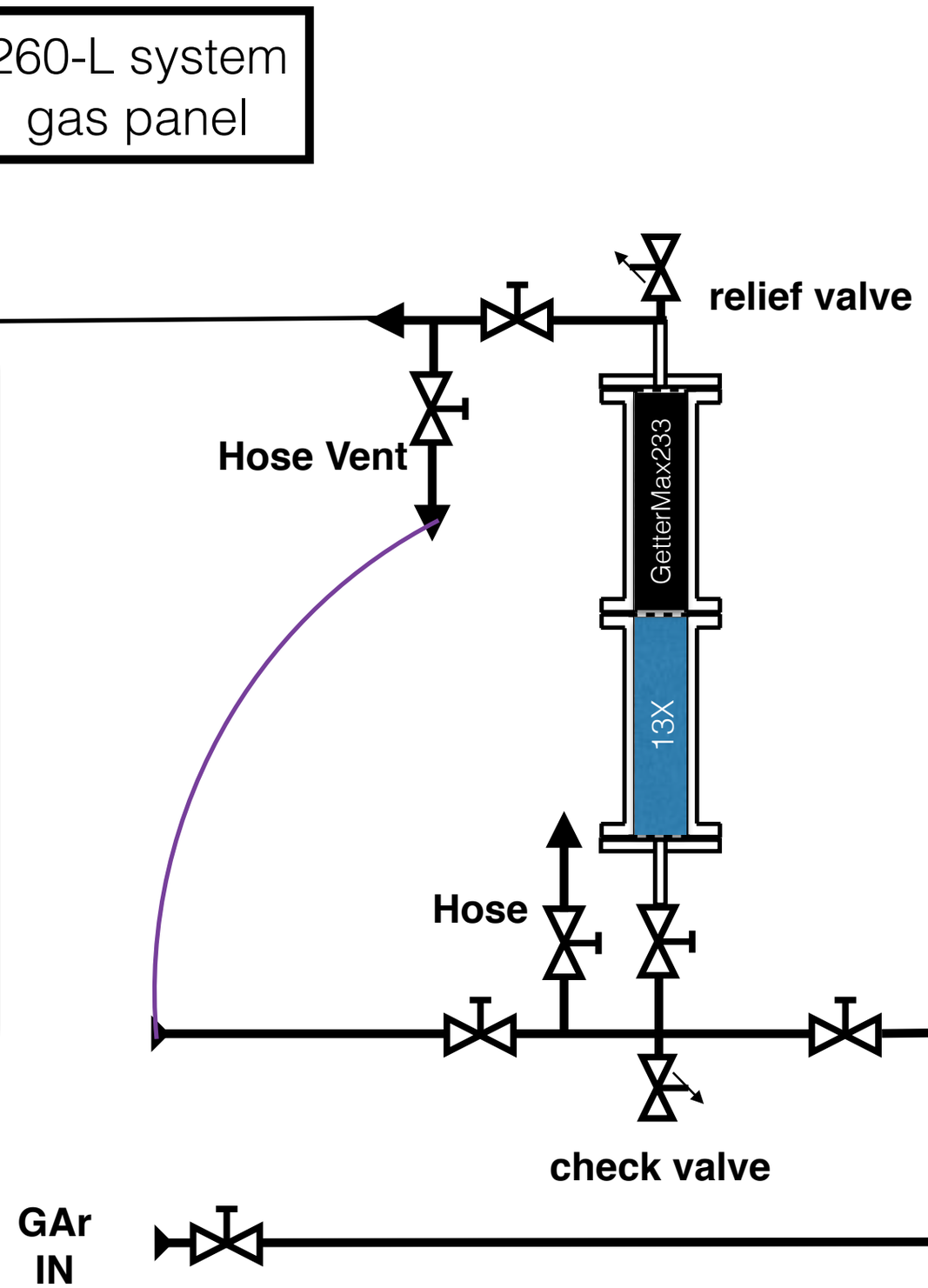
- **Rare earth hot getter implementation**
  - Hot getter plumbed to the downstream of inline filter before the gas analyzers
    - It is implemented before starting the activation because the water analyzer will be occupied during the activation process.
  - The GAr from vaporized LAr plumbed to the hot the gas analyzer
    - Hot getter equipped with bypass loop
    - In parallel with the sampling gas from the 260-L system
    - Gas analyzers can be purged before reading from the 260-L system to save the time

Gas analyzer plumbing diagram









Gas analyzer readings

- **Gas analyzers were supplied with continuous flow since last week**
  - The analyzers run well so far
  - For non purifier GAr, the readings are in the PPM level
    - [O2]~0.7 ppm, [H2O]~1.0 ppm, [N2]~0.4 ppm
  - The hot getter turned today bring the readings down significantly
    - [O2]~20 ppb, [H2O]~167ppb, [N2]~0(under scale)