LAr R&D Progress Report

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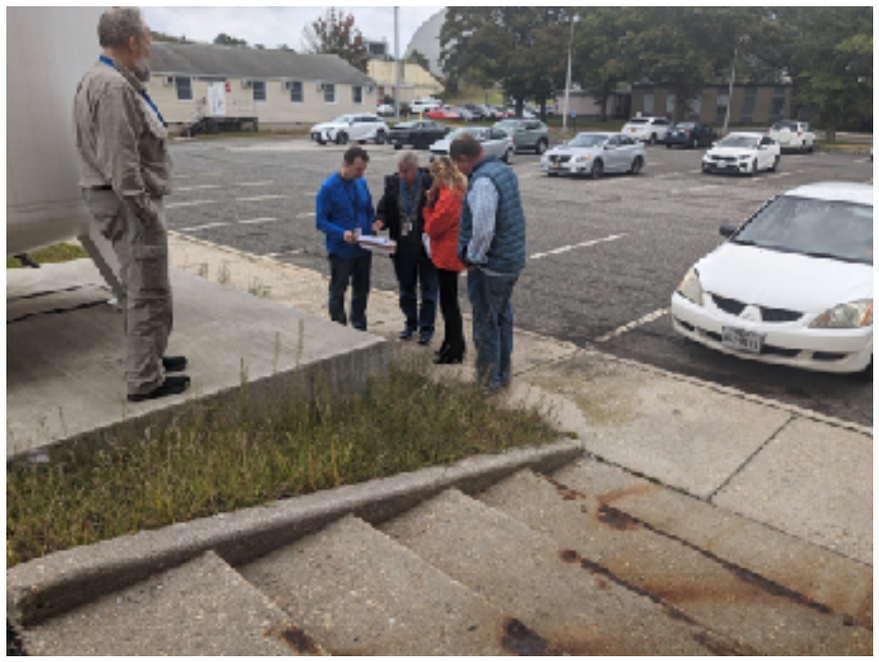
9/26/23

Lab Safety and Space Management

- Crane Access
  - Normal access to the crane resumed
- ESR renewal
  - Our experiment ESR is due to renew, no major updates
  - Will schedule another walkthrough with safety
- 6000-gallon LN2 tank plumbing
  - Cleaning up the room for the RTS stations
  - Met with MPO for the project
  - The original PO as a service contract was advised to be changed to a construction contract
  - The contract must follow the Davis-Beacon Act established in 1931 for prevailing wage
  - Order a work order to get a cost estimation on F&O service

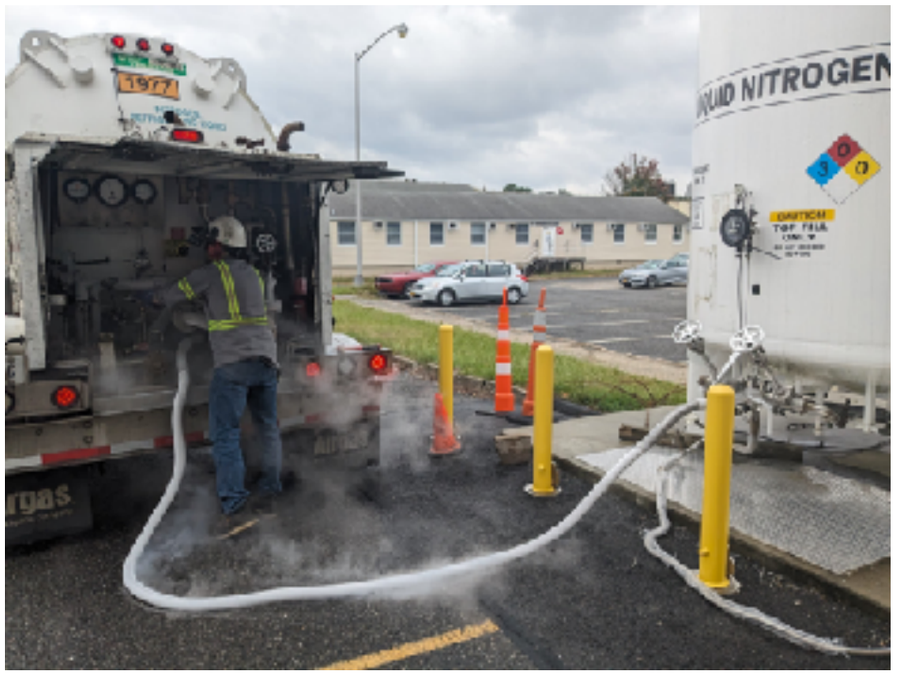


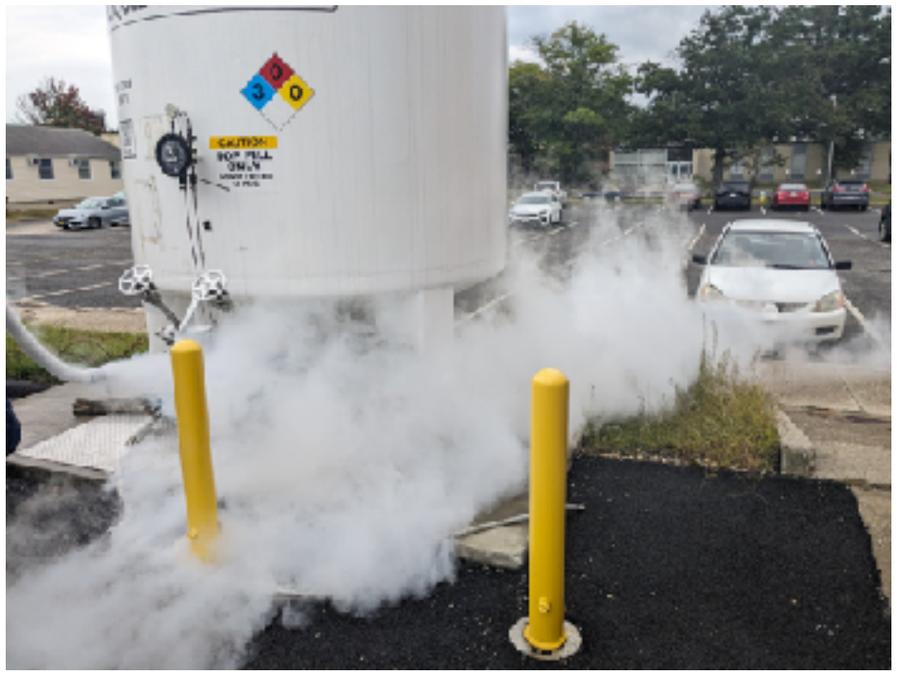
F&O Service list

1. ODH alarm system design
2. ESH will need to perform ODH calc. Who is requesting this? We believe the design and calcs will need to go to the cryogenic committee for review and approval. Who is leading that effort?
3. Contract to install ODH system (by electrical contractor)
4. Labeling the area with ODH signage
5. Construction work planning and controls (permits, training, LOTO etc..)
6. Construction inspection and pressure tests?
7. Penetration through the wall and sealing of the penetration
8. Operational Readiness Review

Lab Safety and Space Management

- **LN2 delivery to 6000-gallon tank**
  - 3500 gallons of LN2 was just delivered to the tank
  - LN2 level filled up to 150” (175” is the full)
  - Parking lot partially cleared with cars in the west row
  - The notification probably should be changed to avoid the area near the tank during filling in the future
  - Sufficient LN2 for the next runs



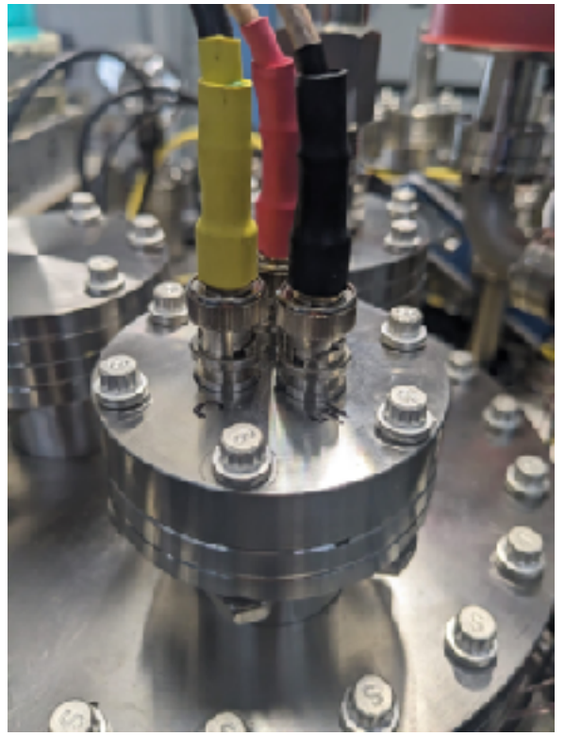


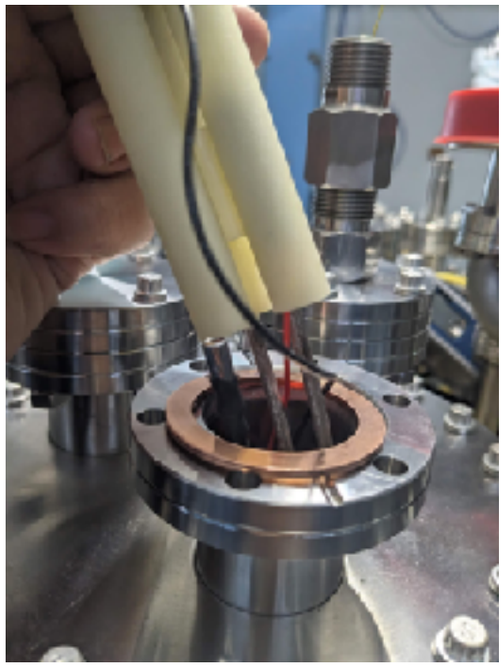
LXe Collection for PIONEER

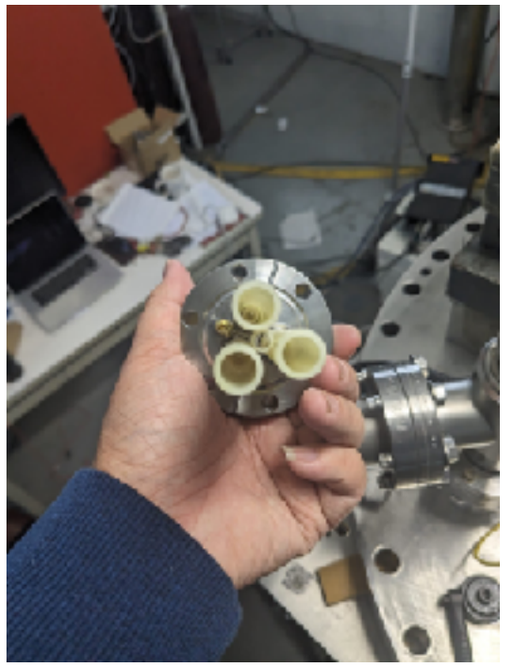
- Feedback from PSI received
  - Special regulations apply to the transport of refillable pressure vessels approved by DOT (1.1.4.7);
  - Transportation can be done from USA / Canada to the end user PSI.
  - A refilling of the gas cylinders must be done according to American regulations CFR / TC. Because this is not possible in Switzerland, refilling cannot take place here.
  - Periodic inspections (10 years) apply to the pressure vessels / gas cylinders
  - "UN2036, Xenon" can be transported by air freight, the limits and special regulations must be observed.
- Part of our questions were addressed, but some essentials were still not answered
- Chloe is going to organize another meeting with the person in charge
- We are going to proceed with the gas cylinder procurement

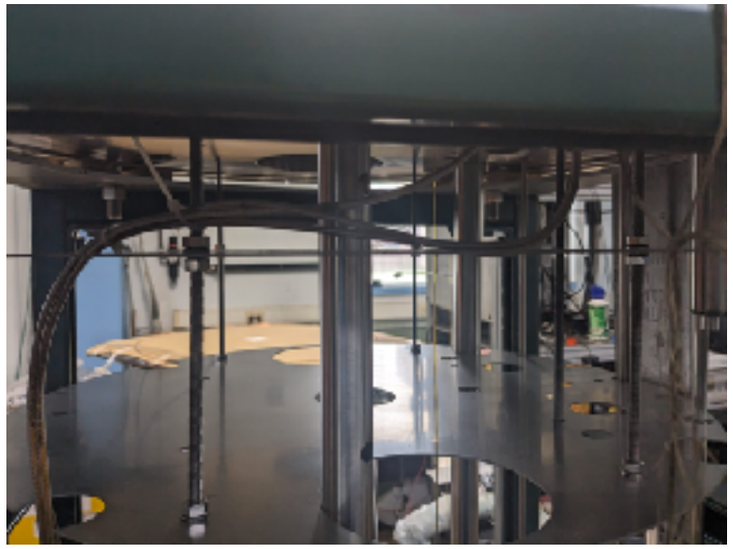
260-L System 2nd purity run

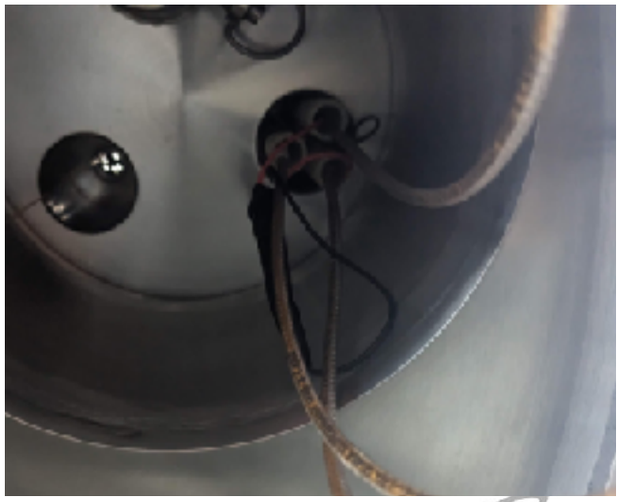
- **Top Flange Ready for assembly**
  - The PrM feedthru problem resolved
    - The connecting pin keeps dropping with gravity
    - Now resolved with bending the cable with elasticity to push the pin in place
  - Cleaning up the surface of the buffer and dewar
  - Sufficient LN2 for the next run
  - LAr ordered for delivery next week











EDIT school 2023

- **EDIT school**
  - Actual attendance is expected to be <50
  - Date: October 10–20, 2023
  - Lectures confirmed:
    - LArTPC principle and cryogenic-Yichen
    - LArTPC physics and reconstruction-Haiwang
    - LAr Cold Electronics-Shanshan
  - LAr Lab: I will supervise the students in highbay
    - 260-L system cryogenic operation, monitoring, slow monitoringdata taking
    - LN2 dewar filling transportation
    - Cryogenic plumbing assembly—>Xenon detector disassembly
  - CE lab: Shanshan will supervise in his lab
    - DUNE chip testing
    - Chip testing station operations
    - Data taking
- Will do a dry run on the lectures this Friday, I collected all the lectures slides draft

260-L System planning

- **Near term plan**
  - The system will be filled with LAr next week
    - Cryogenic operation starting next week and continuously running to the end of EDIT school 10/20
    - Preparation for the ALD filter test
      - Mechanical support hardware:
        - Thread rods need to be on PO
        - Sheet metal and fasteners in place
      - Signal Interface flanges on the 260-L system, inquiring with Ettore/Anna
      - X-Arappucas:
        - Filter production by Raytum
        - PTP coating at Brazil
        - X-Arappuca assembly