LNGS Update

Cryo-Platform & Material Validation

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Cryo-Platform Construction Overview

The cryo-platform construction has reached significant milestones. Civil engineering structures are almost complete.

Current focus has shifted to plant engineering systems, with electrical infrastructure installation underway to support specialized cryogenic operations. operations.

Cryo-P: progress summary

Structural Elements

Perimeter and internal structures finalized including internal walls and and floor slabs per design specifications. specifications.

Technical Fixtures

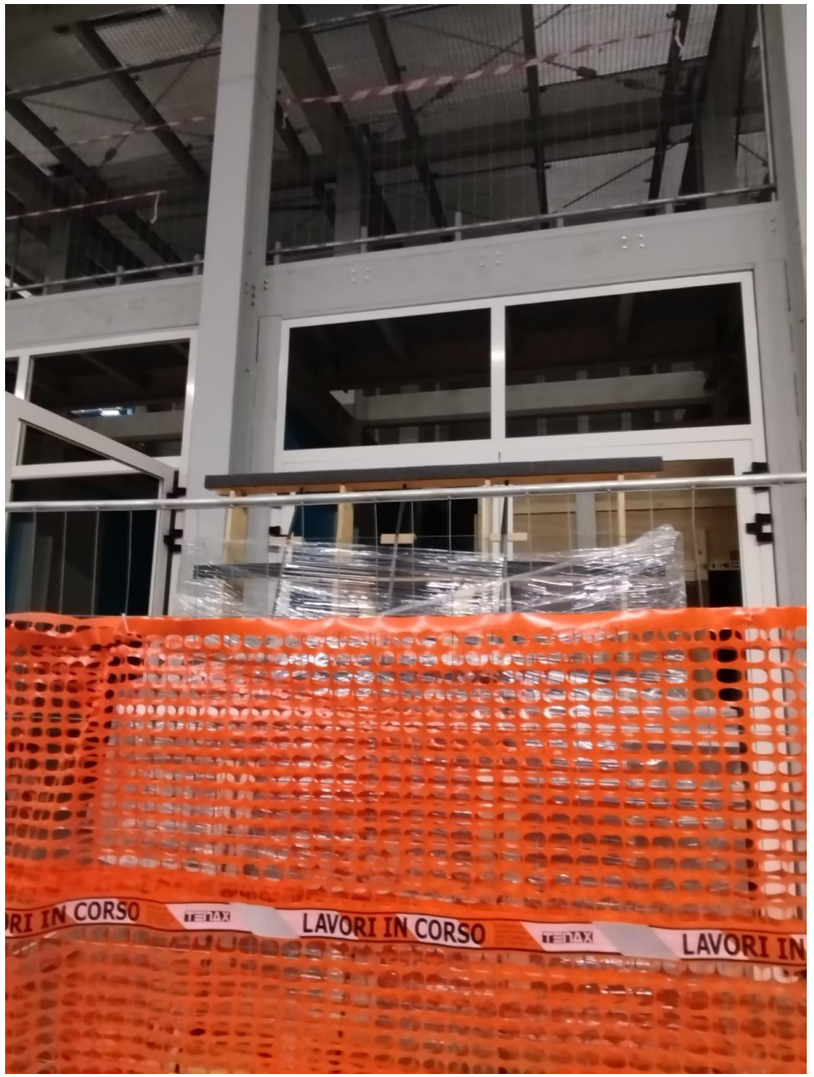
External and internal fixtures completed: doors, windows, and specialized technical closures installed.

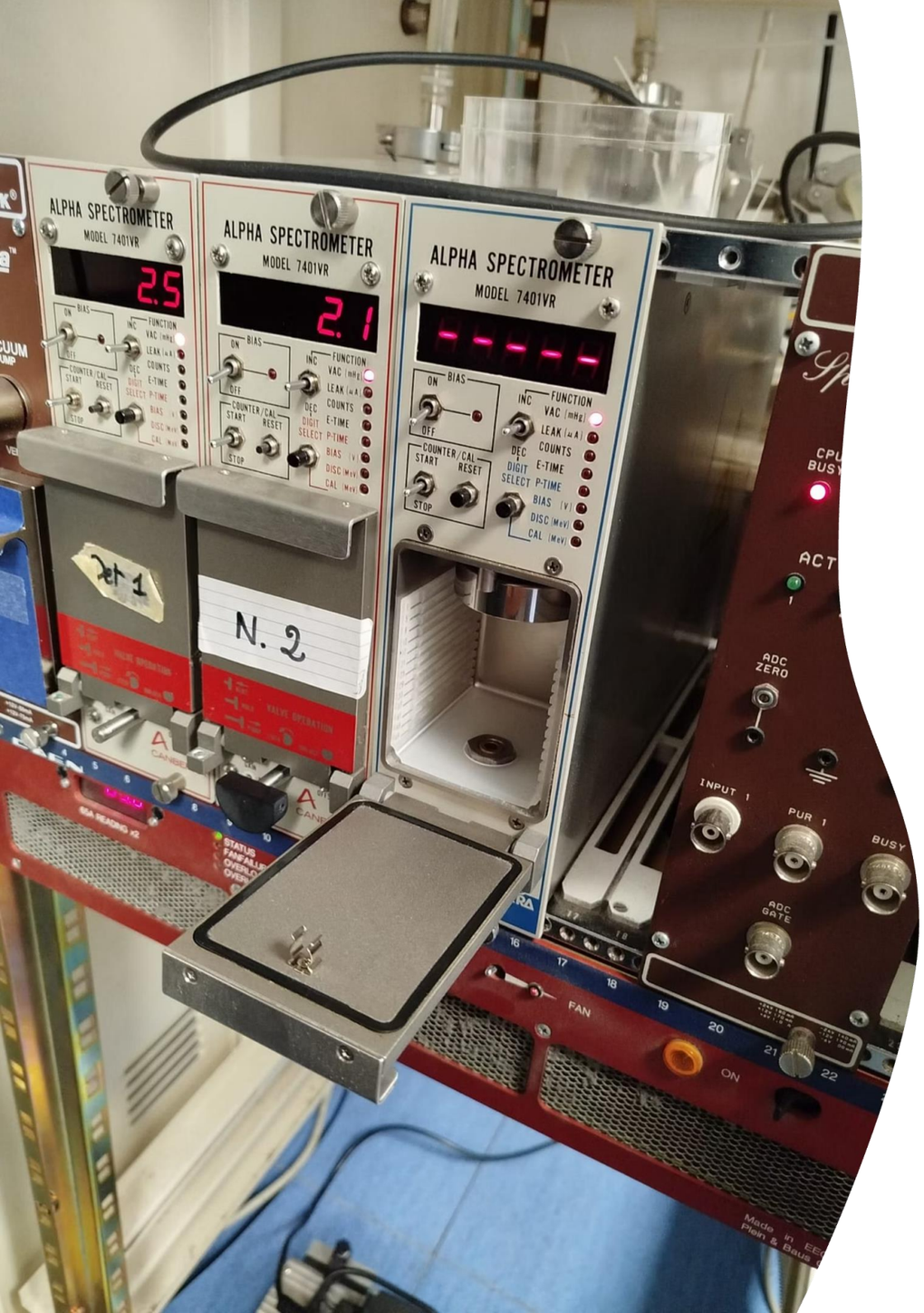
Safety Systems

Guardrails installed on mezzanine level in full compliance with laboratory safety regulations.

Electric Power System

Primary electrical wiring installation is installation is actively in progress, establishing the foundation for power power distribution systems.





Material Radiopurity Validation Campaign

Comprehensive radiopurity validation is underway to ensure all materials meet ultra-low background requirements for precision physics measurements.

Current focus on bulk copper characterization with planned expansion to construction materials and detection components.

Copper Assay in Progress

Sample Loading

Bulk copper sample loaded into into low-background γ-ray spectrometry system on September 5, 2025.

1

Data Acquisition

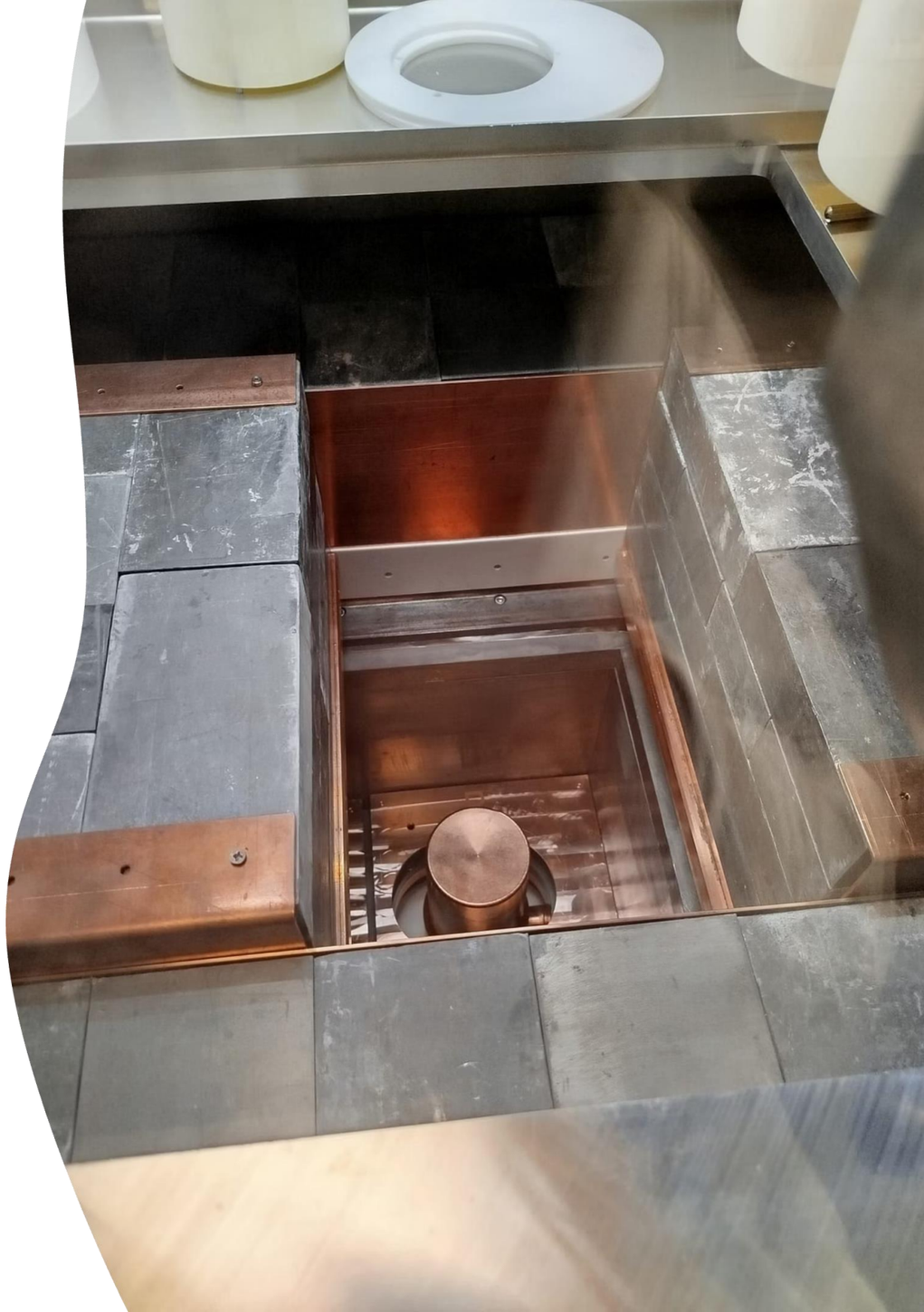
Continuous measurement campaign running with completion expected by October 4, 2025.

2

Analysis

Partial data already in analysis (F. (F. Ferraro, G. Gonnelli, M. Laubenstein). Complete analysis in analysis in mid October

3



Upcoming Material Assessments

01

After Copper Analysis

Insertion of OPERA lead or second copper copper sample for validation.

02

RF Cable Testing

Assessment of radiofrequency cables for for compliance with strict radiopurity requirements.

03

BGO Crystal Study

Bismuth Germanate crystal evaluation for for potential use as active shielding.

Copper Procurement for Room-Temperature Shielding

Supplier Engagement & Quotation Process

Several suppliers have been contacted for the supply of copper, intended for room-temperature shielding against environmental radioactivity. environmental radioactivity.

Quotation requests were sent specifying:

- Machining and cost requirements
- Mechanical format and dimensions
- Delivery timelines and certifications

Purchase Timeline

The order for copper is projected to be placed by December 2025, contingent on technical validation and final budget confirmation. confirmation.

This timeline aligns with the overall Cryo-Platform installation schedule.

Critical Path Forward

Electrical Systems (Cryo-P)

Complete power distribution and cryogenic system electrical infrastructure by Nov 2025.

Cryo-P completion

Completion of the cryogenic infrastructure and ancillaries by Dec 2025.

Material Validation

Radiopurity validation of copper ongoing. Next is OPERA lead and second copper sample. In parallel RF cables and BGO.

Copper procurement for room-T shield

Companies contacted and quotes asked. Order will be placed by placed by Dec 2025

Summary

- The INFN LNGS cryo-platform construction is progressing with mild delay with respect to schedule.
- Civil engineering milestones achieved, electrical infrastructure deployment deployment underway
- Material radiopurity validation campaign is ongoing: currently copper (to come lead, BGO, RF cables)
- Procurement of copper for room temperature shielding is advancing, with the with the quotation process with suppliers in progress and order to be issued by issued by Dec 2025.

Next: Cryo-Platform completion by end of 2025.