SnT 2025
8 SEPTEMBER ONLINE DAY
9 TO 12 SEPTEMBER AT HOFBURG PALACE, VIENNA & ONLINE
CTBT: SCIENCE AND TECHNOLOGY CONFERENCE

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A Modular Approach to the New Integrated On-Site Inspections Field Laboratory Layout

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CTBTO PREPARATORY COMMISSION

INTRODUCTION AND MAIN RESULTS

This presentation provides insights on current status of OSI Field Laboratory deployment and operational layouts which were redesigned between 2023 and 2024, to keep abreast with the current OSI deployment infrastructure enhancements. The poster illustrates a hybrid integration option based on new Field Laboratory tent modules, the SAUNA Laboratory in a flight POD and Radionuclide Laboratory detection capability deployed in a 20ft container. The hybrid Field Laboratory configuration was validated during the recent IFE preparatory Training in December 2024 and is ready for deployment at the incoming IFE. This layout is an important milestone for development of the final modular Radionuclide Laboratory Concept, which will be rolled out after the Integrated Field Exercise based on IFE lessons learned and follow-up recommendations.

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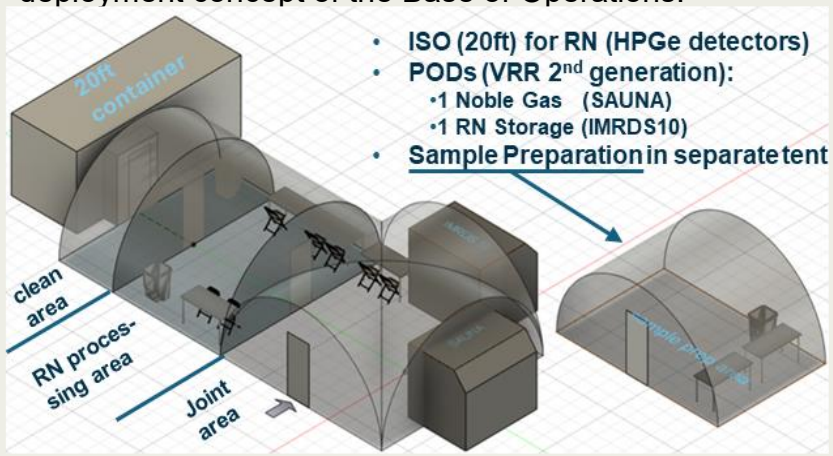
Introduction

The CTBT On-site Inspection Division (OSI) Field Laboratory is supporting Radionuclide techniques, Particulate (RN, Protocol to the CTBT, Part II, Para. 69(c) and 69(d) and Noble Gas (NG, Protocol to the CTBT, Part II, Para. 69(d)); a hybrid configuration of the OSI Field Lab. has been developed in 2024, with full integration of its infrastructure into the current rapid deployment concept of the Base of Operations.



New 3D layout of the OSI Field Laboratory in hybrid configuration, implemented as of December 2024

The new Field Laboratory comprises a joint area in cross tent, hosting the Noble Gas processing area, the POD with SAUNA NG system, a storage POD (IMRDS 10) and access to the RN processing area which is directly connected to the 20ft container hosting the high resolution gamma spectrometers (HPGe detectors)

Methods

What do you need to know about the new OSI Field Laboratory layout?

- The Field laboratory awnings utilized in previous exercises posed major concerns due to safety hazards during commissioning; they were replaced by tent modules, for standardization with Base of Operations infrastructure and for risk mitigation.
- Tailored design tent walls were engineered for integration of the new VRR flight PODs into the new Field Laboratory layout.

First installation of the new tent wall integrating the VRR flight POD into the OSI Field Laboratory at CTBTO TeST Centre in Seibersdorf, Austria

- Sample Preparation Area was moved to a separate tent, adjacent but decoupled from the Laboratory areas, to further mitigate risk of Field Lab. cross-contamination during sample manipulation.
- OSI Field Lab. Power infrastructure and surge protection were enhanced to provide safe, stable and reliable power to the sensitive Laboratory equipment also in challenging external conditions.

Results

The new OSI Field Laboratory layout is currently deployed and operational in the outside area of the CTBTO TeST Centre in Seibersdorf, demonstrating robustness and resilience over several months of test operations in varying environmental conditions.

New 3D layout of the OSI Field Laboratory in hybrid configuration installed at CTBTO TeST Centre in Seibersdorf, Austria

Conclusions

The hybrid Field Laboratory configuration, as installed at the CTBTO TeST Centre in Seibersdorf, Austria, is ready for deployment at the upcoming Integrated Field Exercise. This layout is an important milestone for development of the final modular Radionuclide Laboratory Concept, which will be rolled out after the Integrated Field Exercise.

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