

ISOLDE Technical Report

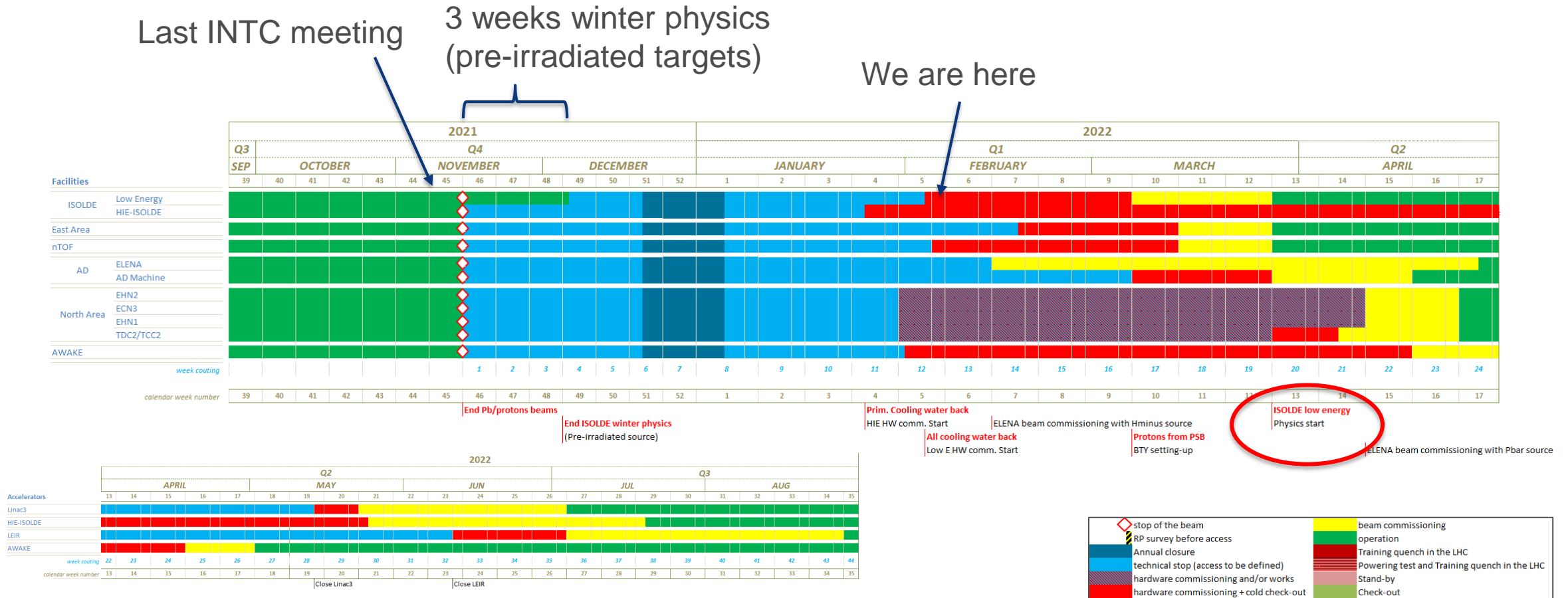
09/02/2022

J. Vollaire on behalf of technical and operation teams



- Update since the last INTC (09/11/201)
- Status of YETS 2021/2022 main dates for the restart

YETS 2021-2022 overall planning



Since last INTC, decision to extend the injector shutdown by two weeks (would have been anyway challenging to be ready with access restriction constraints due to COVID). Shift by two weeks, but 2022 will still be a long run !

Shutdown activities (target and separator areas)

- **Targets transport (by truck) to mid-term storage area:**
 - Targets with not further possible use (cooldown before disposal)
 - 6 targets in total transferred (outside working hours)
- **Targets transfer to MEDICIS storage (possible reuse for ISOLDE)**
 - 24 targets in total (targets produced in 2021 and before)

Targets ready for transport



Mid-term storage



MEDICIS Storage Area



Frontend maintenance

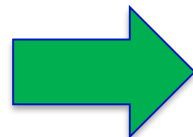
- **Recurrent activities:**

- Installation of shielding (ALARA), exchange of extraction electrodes (new design), greasing of mechanical parts, cleaning of insulators (no vacuum maintenance, every 2 years), exchange of laser window (HRS separator).



- **Consolidations and repairs**

- Exchange of coupling table pistons (failure during 2021 run)
- Consolidation of extraction electrode mechanism (failure)
- Consolidation of turbo pumps cooling (failure during 2021 run)
- Installation of two RF connectors on HRS (both GPS and HRS compatible with LIST targets operation) and coupling tests



Readiness for stable beam commissioning of low energy beam lines since 04/02 (cooling water back)

Only few activities remaining to be ready for operation with protons (ventilation maintenance, DSO tests, shielding removal....)

Frontend maintenance in pictures (1)

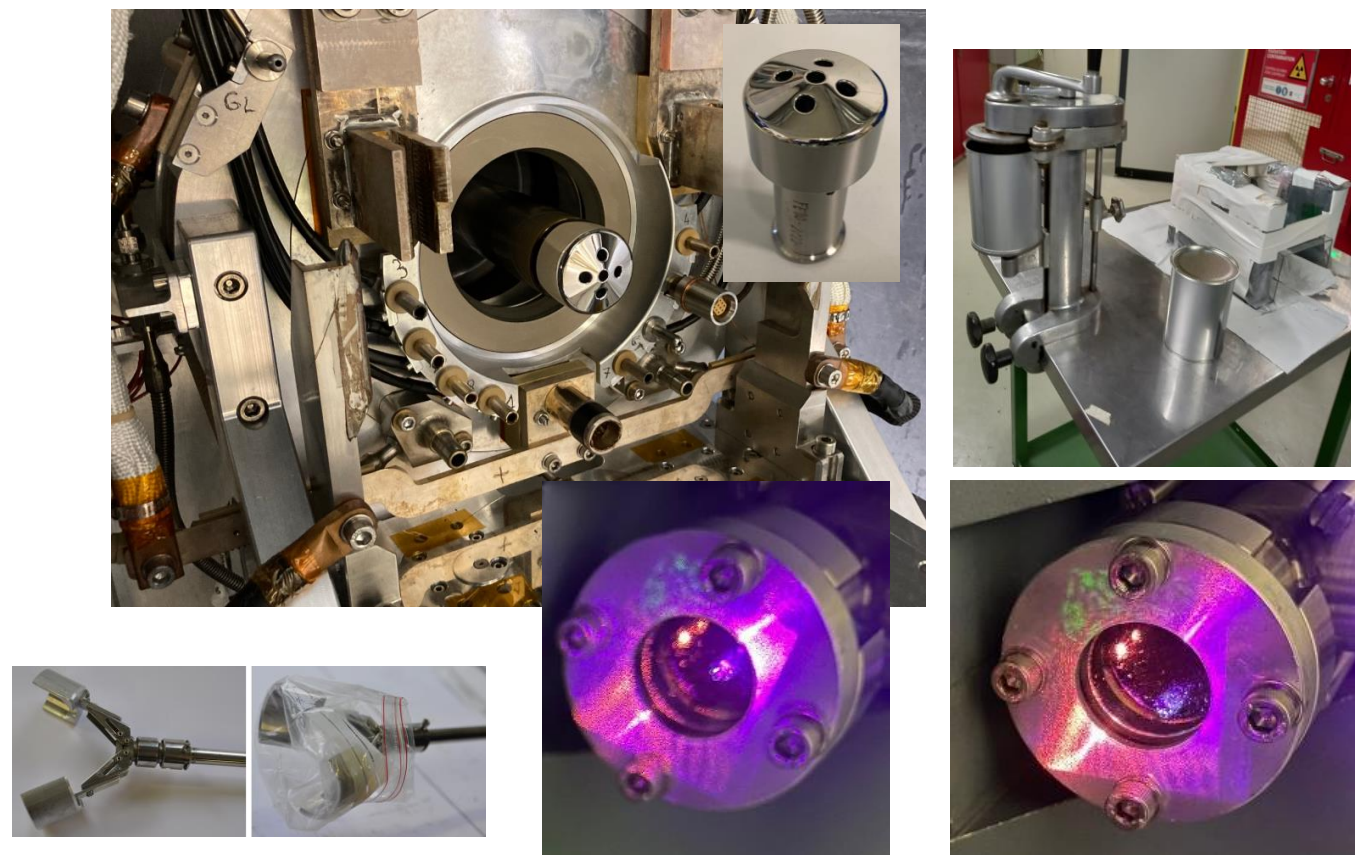
Shielding installation

(dose rate reduction of about 30-40 % close to the coupling table)



Extraction Electrodes Exchange

- New extraction electrode design
- Use of power meter target (transmitted laser power to the ions source) to validate the transmission through the side holes.



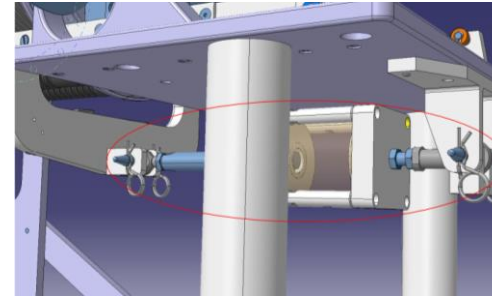
Frontend maintenance in pictures (2)

Installation of RF connectors on HRS Frontend (LIST target)

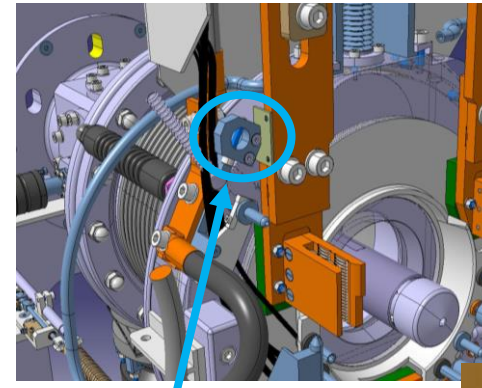
Exchange of coupling table pistons (more robust design)

Ceramic insulator cleaning

Floor cleaning



Installation of RF connectors on HRS Frontend (LIST target)



- Quick mounting system
- Mechanical and electrical coupling tested successfully



Other activities and technical visits (1)

- **Consolidation activities**

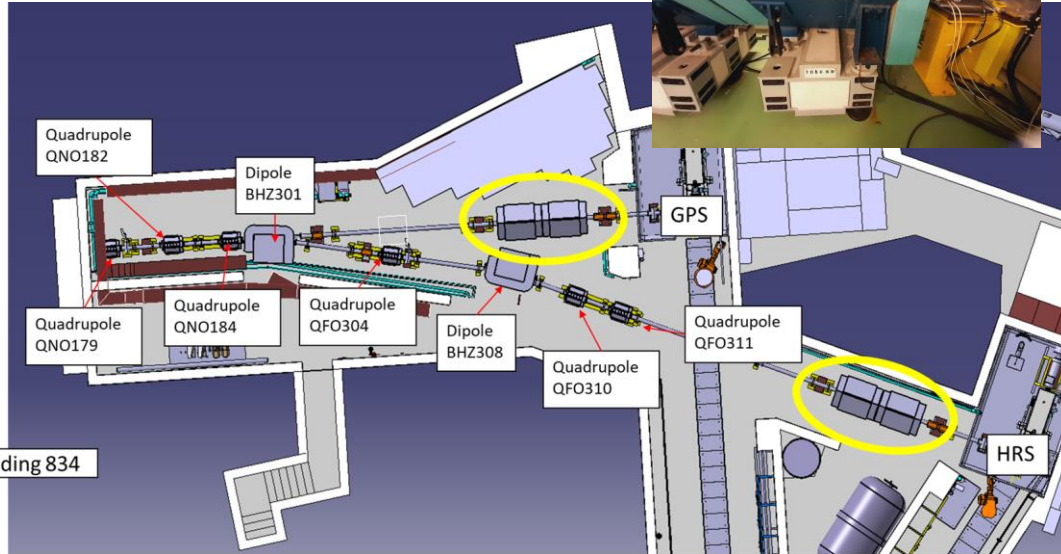
- Target storage shelves (mechanical and control improvement)
- Lighting system, camera system (remote visualization), Rail Conveyor System switches
- New evacuation sirens (better compartmentation to avoid sirens from Build. 179 to be heard in the hall).

- **Several technical visits for consolidation or projects**

- BTY line inspection (context beam optics study)
- BTY line magnet patrol (assess magnet aging)
- Fixed SEMGRIDs in the proton beam line and different instruments in the separator zones candidate for consolidation strategy (lack of spare, documentation or performance limitations)
- Ventilation consolidation
- EN-EL possible decabling campaign and cable routing improvement

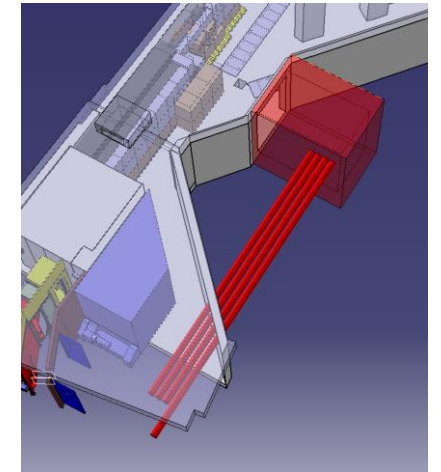
Other activities and technical visits (2)

Four quadrupole magnets show sign of aging and are considered for exchange during the coming years



Spare to be prepared and intervention carefully prepared (handling, vacuum...)

Investigating cabling improvement (parallel to beam dump replacement)



Cable “bottleneck” and problem of air tightness between areas (pass through the “air lock”)

Earth sampling campaign (Beam Dumps Replacement Study)

- Many soils sample taken on top of the target area and around the beam dumps.
- Direct measurements and gamma spectrometry results will be a very valuable input for the project (cost, work procedure, radioactive waste management....)

Acknowledgement: M. Deschamps (RP-AS, CERAP)



Summary

- Most YETS activities for the Frontends and separators areas are finalized and stable beam commissioning started this week
- BE-OP-ISO started already several weeks ago with hardware checkout and with all controls and application checks that could be done without beam
- Reference configurations will be saved for all Frontends, target type and beam destinations

- Protons to the BTY line on the 07/03 (3 weeks of commissioning before physics)
- Long run in 2022 so target production have to be carefully anticipated and prepared (supply of parts and use of targets as number of units produced will not increase)

- For HIE-ISOLDE, maintenance of the cryoplant is ongoing and will be followed by commissioning. Start of cooldown procedure schedule for the 24/03. RF conditioning about a month later. Start of HIE Physics 20/07/2022.

