Dismantling work prior to target complex implementation

HI-ECN3 BDF target & target complex initial review

Jean-Louis GRENARD

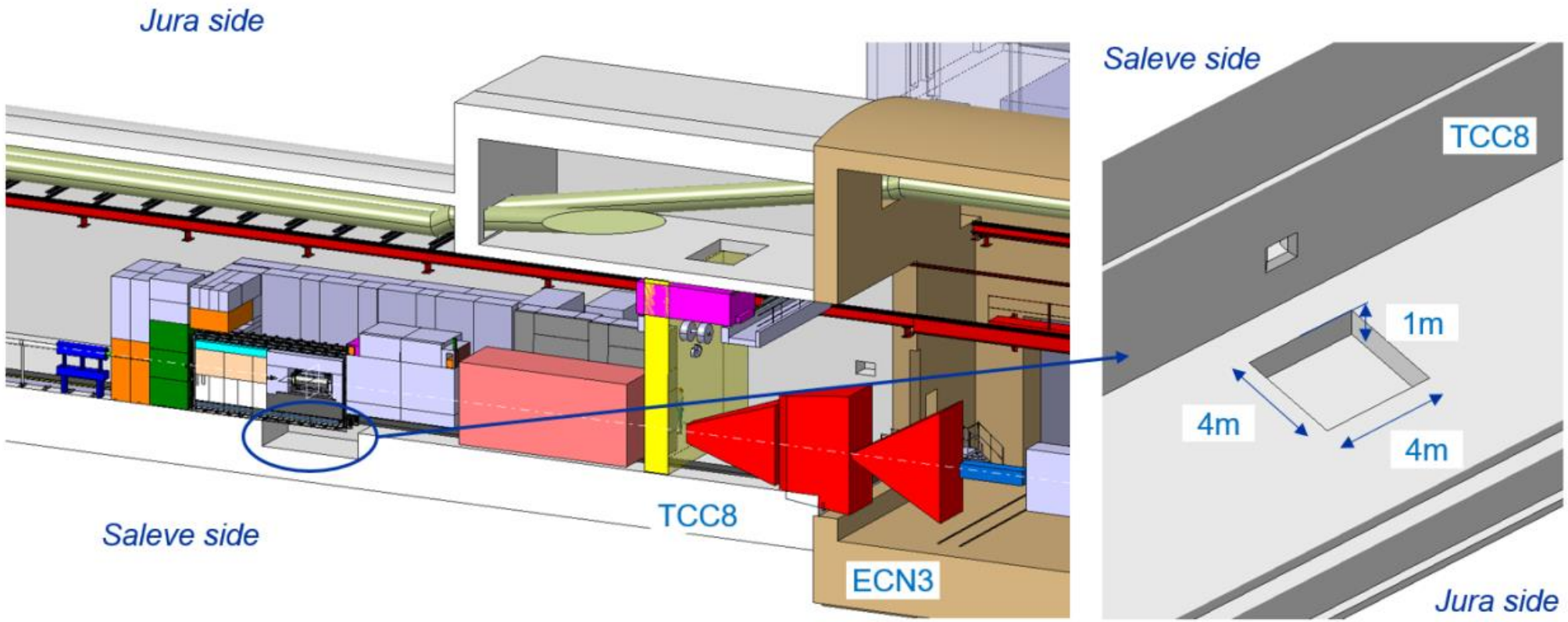
29-04-2024

Dismantling plan

- **Cooldown of about 6 months for the current target station (~70m at the beginning of TCC8) before start of dismantling activity**
- **The rest of TCC8 dismantling can start at T0 of LS3 (to free the space for CE activities)**
- **Detail inventory of the equipment being built to perform RP classification**
- **Detail dismantling sequence to be built**
- **Logistics for the equipment to take out to be organized**
  - Most beam line equipment to be recovered (to be used as operational spares)
- **Logistics for the shielding's to be reuse to be organised**

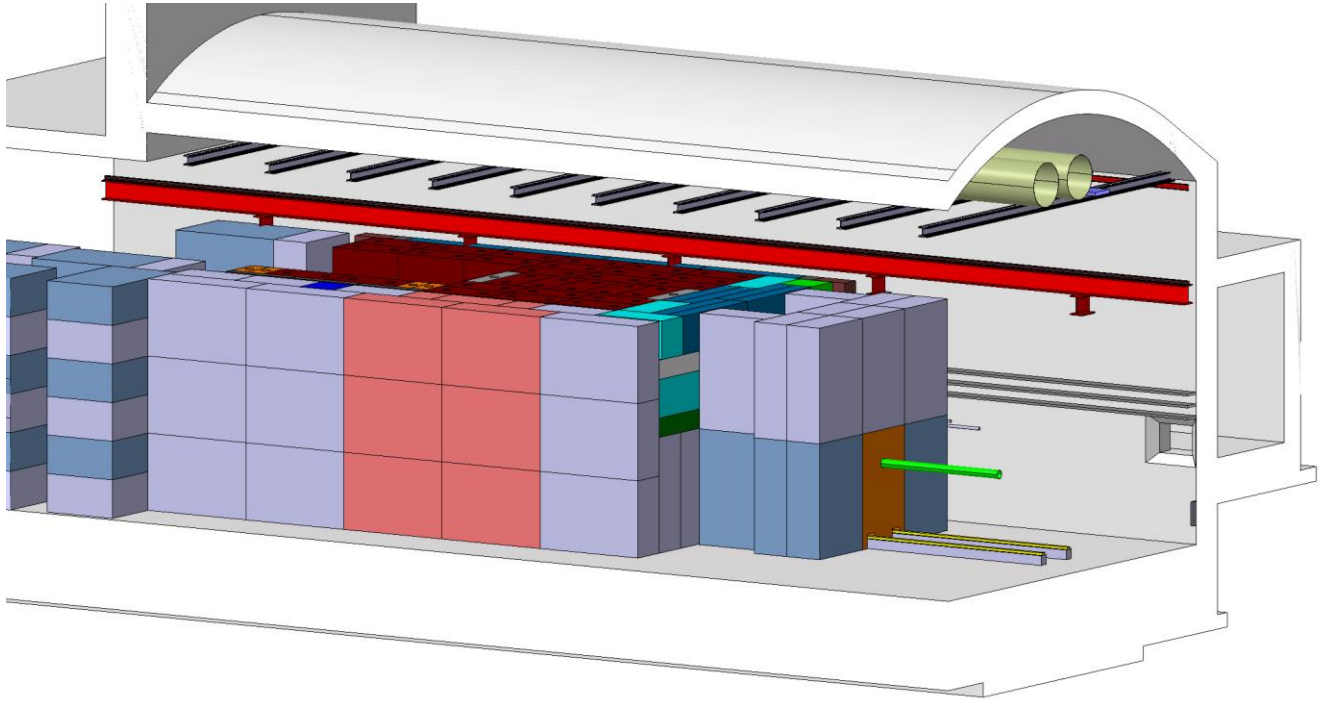
Target station CE work

- Trench possibly needed bellow the target station to reinforce locally the shielding
- To be confirmed following hydrogeological study outcomes



BDF/SHiP target station

- **~ 180 m³** of cast iron + US1010
- **~ 360 m³** of concrete / marble
- Few special blocks (with active cooling, special shape) needed
- 3D model of target station currently being developed around ‘’standard’’ blocks



Cast iron and concrete blocks (current) costs

- Scrap cast iron → **~1950 CHF/m³** (250 CHF/t)
- Finished standard cast iron block → **~ 31200 CHF/m³** (4000 CHF/ton)
- Finished standard concrete block → **~ 600 CHF/m³**
- Radioactive objects elimination paths
  - TFA (<100µSv/h) → **~600 CHF/m³** (can go up to ~1200 CHF/m³ for large single blocks)
  - FMA(>100µSv/h) → **~32000 CHF/m³**

➢ **Large interest to reuse activated blocks** (including those above 100µSv/h)

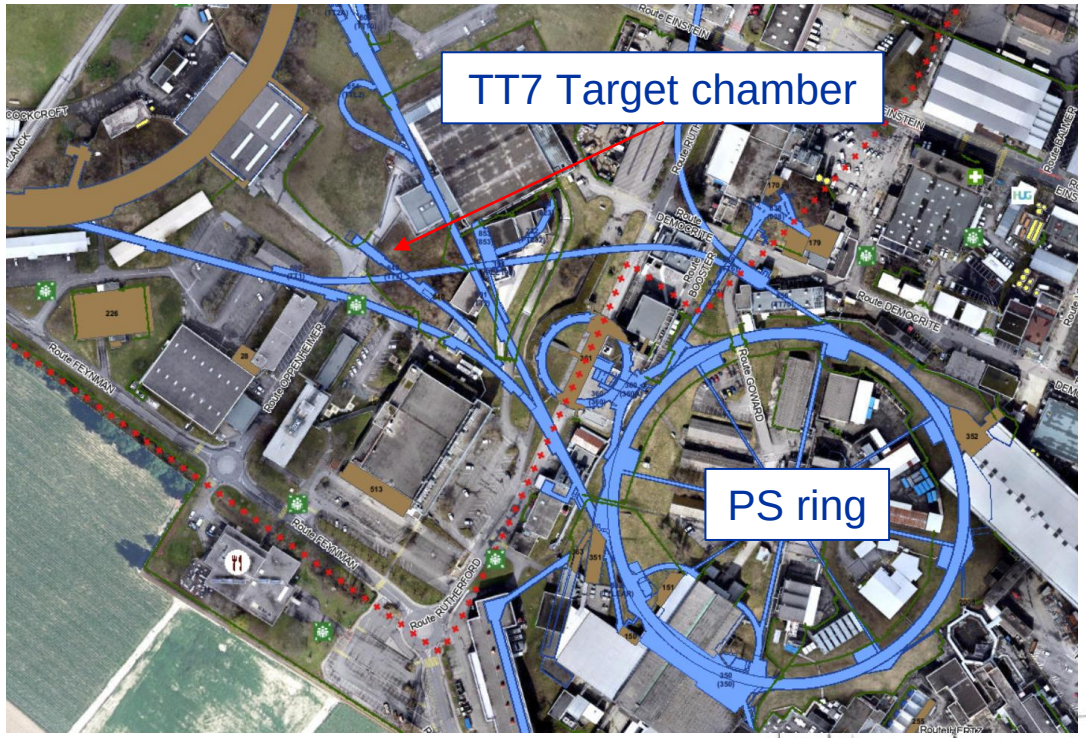
TCC8 tunnel (current T10 target station)

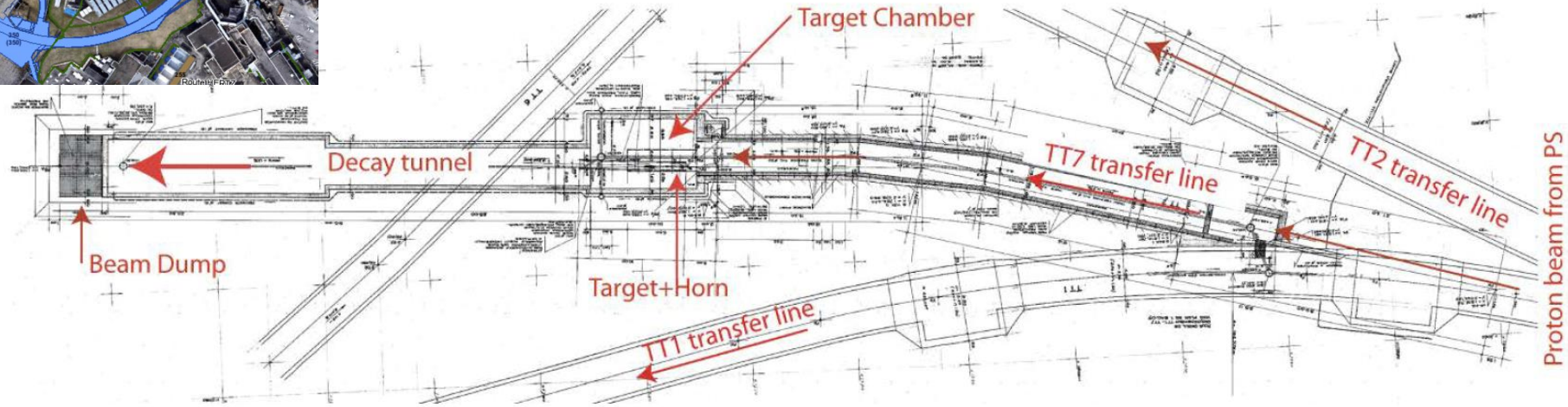
~15 m³ of **standard** radioactive cast iron blocks

~400 m³ of **standard** radioactive concrete blocks

Will be reused in situ for the target station

TT7 PS neutrino facility





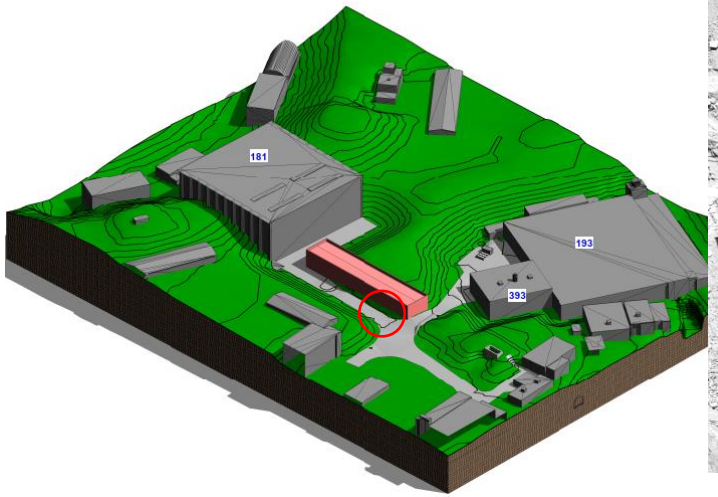
Operation in 1983-84

TT7 PS neutrino facility

100m³ of **standard** cast iron blocks + **~50m³ of non-standard** cast iron blocks (~3MCHF)

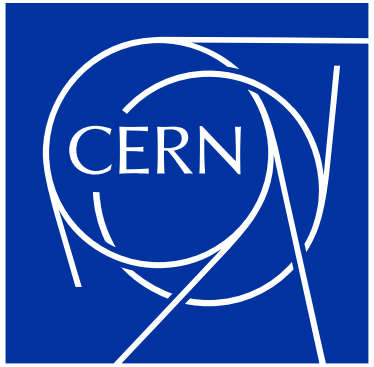
- Activated blocks (dose rate expected not to be high)
- Need large excavation ~ 3000 m³
- Fully independent of accelerator operation (and far enough)
- Some disruption around the site to foresee during the execution
- Some utilities dedicated to road located in the vicinity

Investment (~0.7 MCHF)



Conclusion

- TCC8 target station dismantling need further development
- Logistic will the key aspect to handle smoothly this dismantling
- A good fraction of the shielding required for the construction of the new BDF target station being recovered (TT7 and TCC8)



home.cern