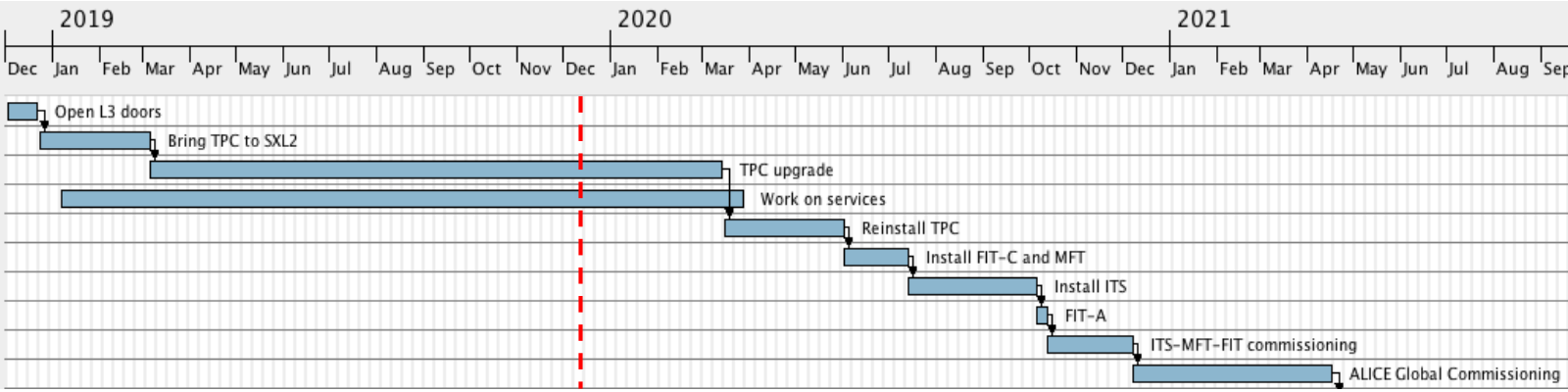
LS2 planning meeting

A.Tauro

LS2 master plan (v34)

Begin date	End date	Dur...
3/12/18	21/12/18	15
24/12/18	5/3/19	52
6/3/19	13/3/20	268
7/1/19	27/3/20	320
16/3/20	1/6/20	56
2/6/20	13/7/20	30
14/7/20	5/10/20	60
6/10/20	12/10/20	5
13/10/20	7/12/20	40
8/12/20	16/4/21	94



LS2 extended by 2 months
2 weeks shift due to TPC RO exchange & cage insertion test

Key dates

Activity	v33	v34
Move TPC to UX25	5 Mar 2020	17 Mar 2020
Move TPC to IP	23 Apr	7 May
Install Miniframe	15 May	28 May
FIT-C & MFT installation	20 May	2 Jun
ITS installation	1 Jul	14 Jul
FIT-A installation	23 Sep	6 Oct
ITS & MFT commissioning time	8w	
ALICE global commissioning time	13w	19w
End of LS2	18 Apr 2021 (approx.)	

EN-EL interventions

- 66kV powered back last Friday – no power cut. CERN back in nominal configuration (with 2 networks available: services generaux and machine network)

- 18kV, 3.3kV and LV network maintenance:
  - Mon 20 to Wed 22 Jan 2020: 3 days no general services - no access on site (both surface and underground)
    - **SG2 will not be cut (repowered in the same way as SX2 and CRs)**
    - Cooling plants will be cut (as they are powered from serv.gen.)
    - SX2, CRs and ACR will not be cut (repowered from 66kV)
    - CR0 will not be cut as it is powered from machine network
    - Racks in the cavern will not be cut, water circulation will not be stopped
    - **Access possible for ALTEAD (SX2), EN-EA (miniframe), P2tech (SX2)**

  - Thu 23 to Fri 24 Jan 2020: 2 days ''Limited access''
    - Normal power in SXL2 (including cranes, lights and wall outlets)
    - Gas and cooling systems will be running
    - **Access possible for TPC (SXL2), ALTEAD (SX2, SXL2), EN-EA (miniframe), P2tech (SX2, SXL2)**

- AUG on Monday 27 January 2020 - no access on site (both surface and underground)
  - All equipment should be switched off on Friday 24 PM latest

- Auto transfer test: 27-30 Apr 2020

- Test secours (10 min at 6:00 AM): 26 May 2020

- BIW test: 5 and 6 Oct 2020 from 18:00 to 00:00 – no access underground

Racks status

- Racks currently powered on:
  - HMPID racks
  - PHOS-CPV: A16, A17
  - CTP: C24, C25 (CTP) (and VME crates on)
  - MCH: C08, C10, C37, C39
  - TOF: O03, O04, O05, O30, O31, O32
  - TOF: I03, I04, I05, I30, I31, I32

EN-CV interventions

- **Big maintenance:**
  - SF: from Nov 2019 to mid Jan 2020. NO impact on ALICE as both magnets will be OFF.
  - ~~UW: **stop UX mixed water** for 2 days in week 41/2019 (October) – Tue 8 and Wed 9 Oct – done~~
  - SU: various small perturbations + 1 day **stop all cooling UX** + 1 day **stop all cooling SXL2** in week 16/2020 (April).

- **Small maintenance:**
  - UW: from mid Aug 2020 to mid Sep 2020. **Stop mixed water UX** for 1 day in week 37/2020 (September).
  - SF+SU: weeks 45-47/2020: cleaning towers (stop SF 1 week) + 1 day **stop all cooling UX**.

- Renovation transformer UIAC220 in w10/2020 → will stop rack cooling but bypass could be put in place

- **Stop demineralized water from 17 to 20 December 2019**

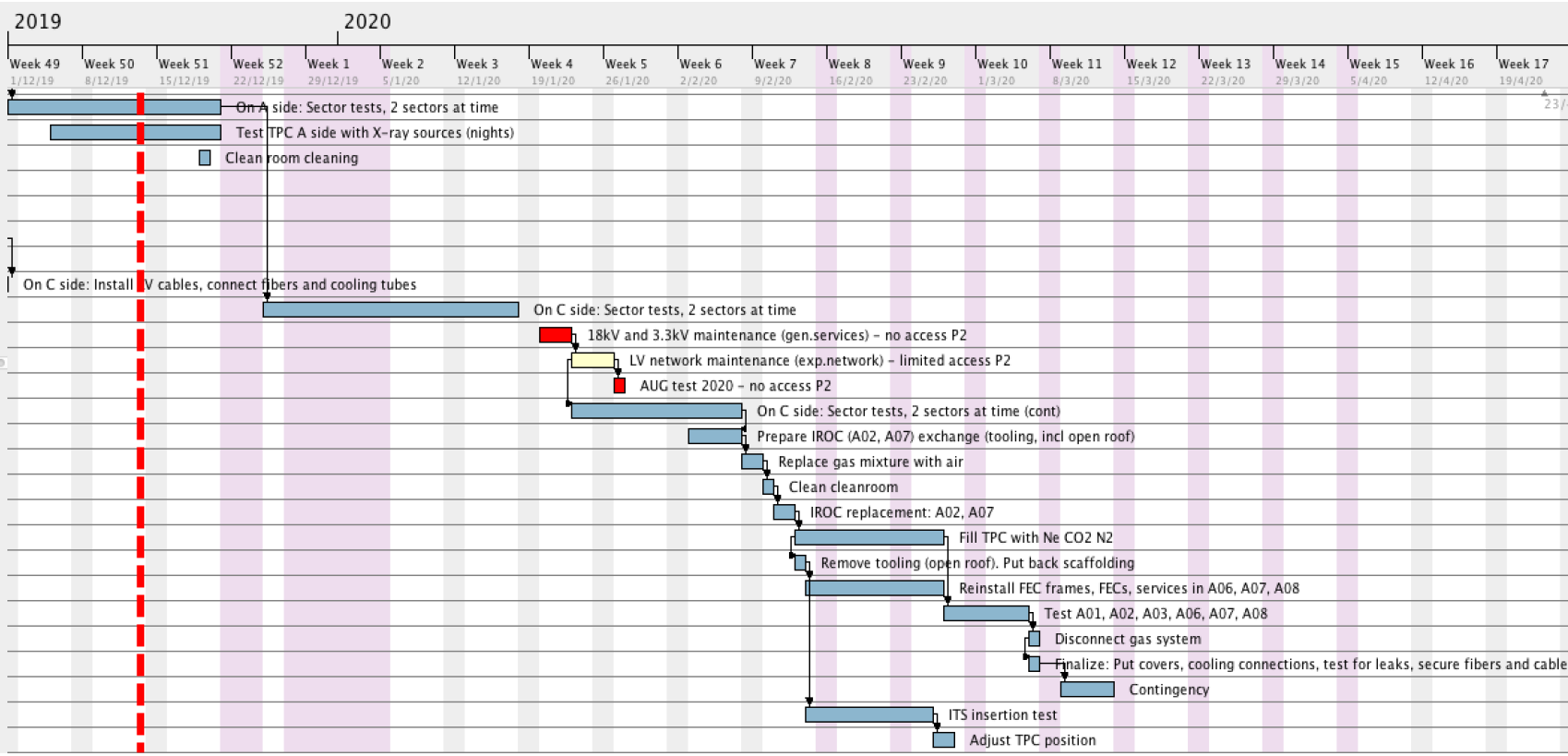
- **Ventilation:**
  - SG2: w7/2019 - Done
  - Gas extraction: w8/2019 - Done
  - UX25 cavern: May 2020 (tbc)
  - MCH and MTG: Apr 2020 (tbc)
  - L3: Apr 2020 (tbc)
  - ITS: Apr 2020 (tbc)

- **Raw water:**
  - Test after Apr 2019. Short interruption (1 day), can be used tap water during the test.

TPC upgrade sequence

TPC schedule v40

Begin date	End date	
21/11/19	20/12/19	On A side: Sector tests, 2 sectors at time
5/12/19	20/12/19	Test TPC A side with X-ray sources (nights)
19/12/19	19/12/19	Clean room cleaning
11/10/19	23/10/19	
24/10/19	24/10/19	
25/10/19	12/11/19	
25/10/19	8/11/19	
18/11/19	29/11/19	On C side: Install LV cables, connect fibers and cooling tubes
25/12/19	17/1/20	On C side: Sector tests, 2 sectors at time
20/1/20	22/1/20	18kV and 3.3kV maintenance (gen.services) – no access P2
23/1/20	26/1/20	LV network maintenance (exp.network) – limited access P2
27/1/20	27/1/20	AUG test 2020 – no access P2
23/1/20	7/2/20	On C side: Sector tests, 2 sectors at time (cont)
3/2/20	7/2/20	Prepare IROC (A02, A07) exchange (tooling, incl open roof)
8/2/20	9/2/20	Replace gas mixture with air
10/2/20	10/2/20	Clean cleanroom
11/2/20	12/2/20	IROC replacement: A02, A07
13/2/20	26/2/20	Fill TPC with Ne CO2 N2
13/2/20	13/2/20	Remove tooling (open roof). Put back scaffolding
14/2/20	26/2/20	Reinstall FEC frames, FECs, services in A06, A07, A08
27/2/20	5/3/20	Test A01, A02, A03, A06, A07, A08
6/3/20	6/3/20	Disconnect gas system
6/3/20	6/3/20	Finalize: Put covers, cooling connections, test for leaks, secure fibers and cable
9/3/20	13/3/20	Contingency
14/2/20	25/2/20	ITS insertion test
26/2/20	27/2/20	Adjust TPC position



TPC upgrade sequence

Remove Services and FEE (outside cleanroom)

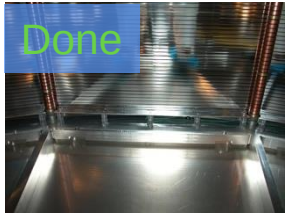
Uninstall MWPC ROC

Install GEM ROC

Install new FEC + test

Ready for transportation to SX2

TPC in cleanroom. Cleaning & irradiation tests



FC HV infrastructure modification

Survey, shimming, sealing

Pre-commissioning with cosmic, Laser, pulser, Xray

7 Mar

11 Apr

25 Apr (A)
5 Aug (C)

13 May (A)
16 Aug (C)

14 Jun (A)
25 Aug (C)

5 Jul (A)
16 Sep (C)

14 Oct (A)
31 Oct (C)

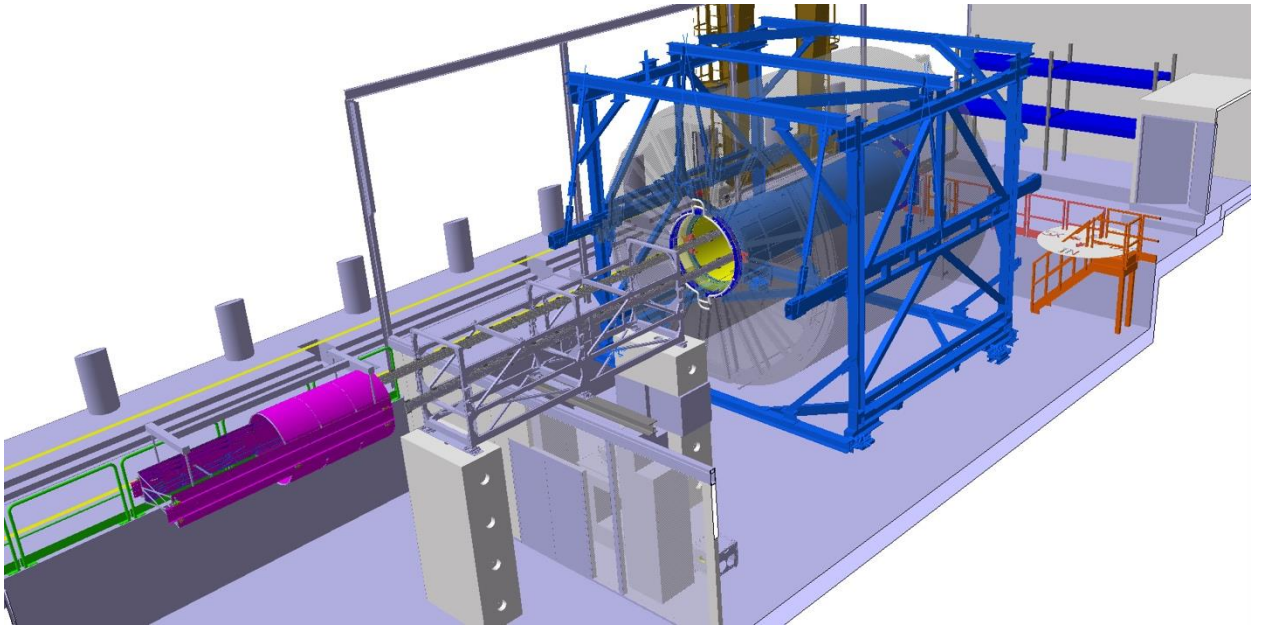
25 Nov (A)
7 Jan (C)

12 Mar 2020

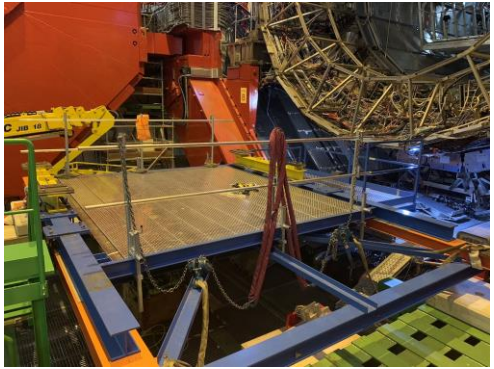
TPC schedule v38

Cage insertion test (January)

- **Goal: test cage insertion and interface with TPC**
- Cage will be inserted from A-side, using ITS table and final rails
- Survey needed
- Open cleanroom roof and back wall – close cleanroom with plastic sheet
- Allow TPC laser operation during C-side test
- Test planned in weeks 8-9, after TPC ROC exchange



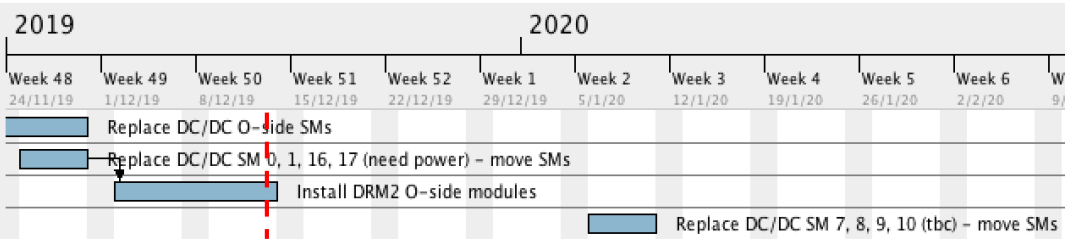
TRD12 reinstalled



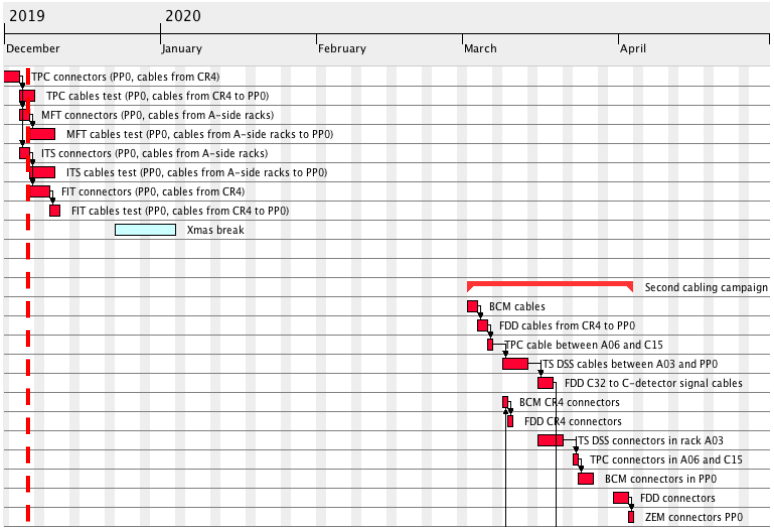
TRD table dismantled and stored

TOF schedule

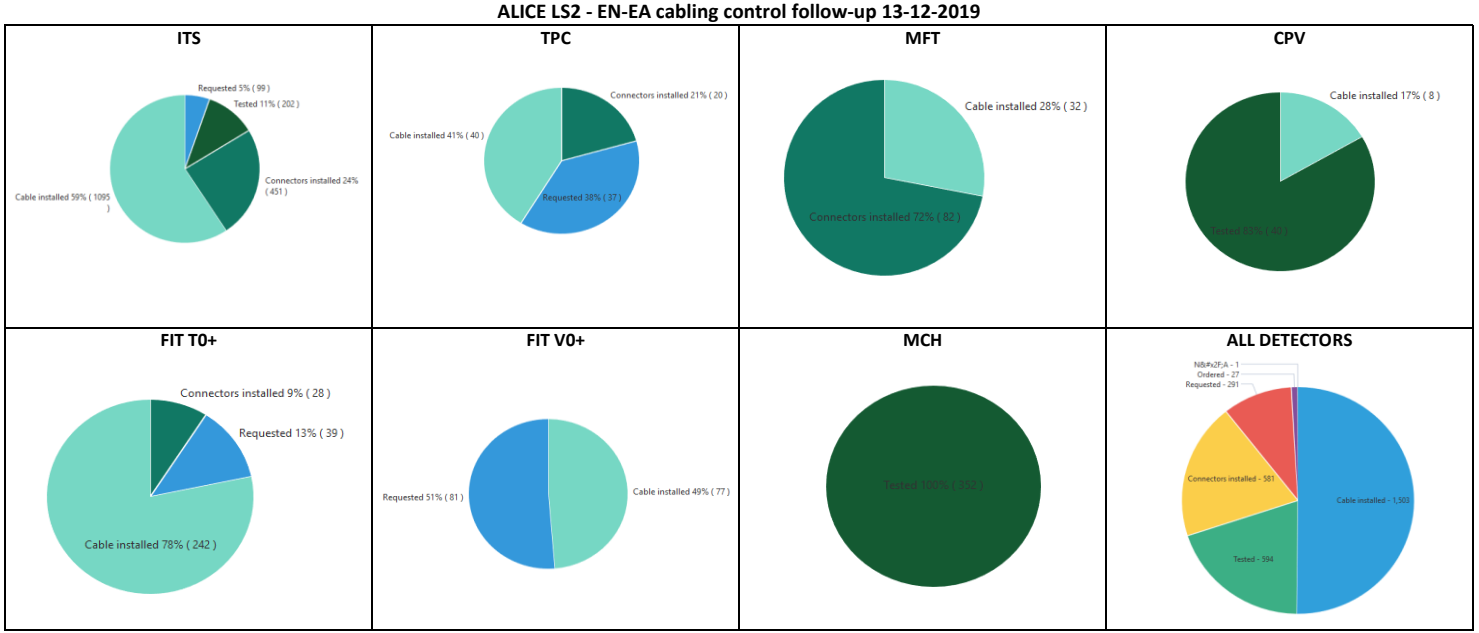
Begin date	End date	Dura...
18/11/19	29/11/19	10
25/11/19	29/11/19	5
2/12/19	13/12/19	10
6/1/20	10/1/20	5



Copper cables (EN-EA)



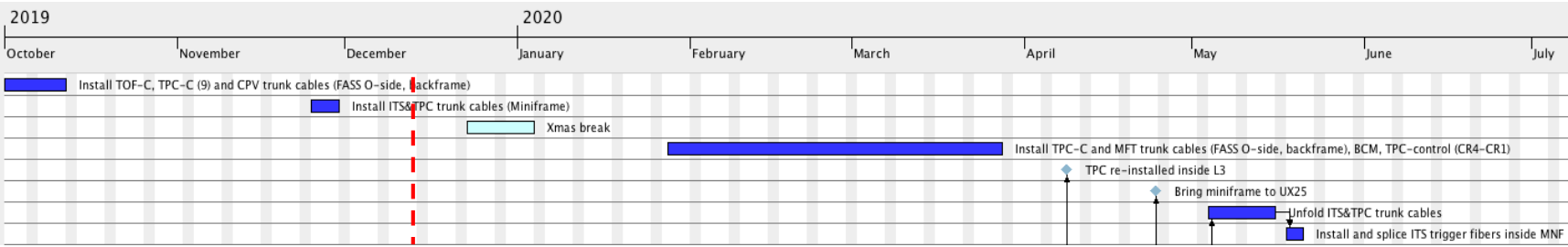
Copper cables (EN-EA)



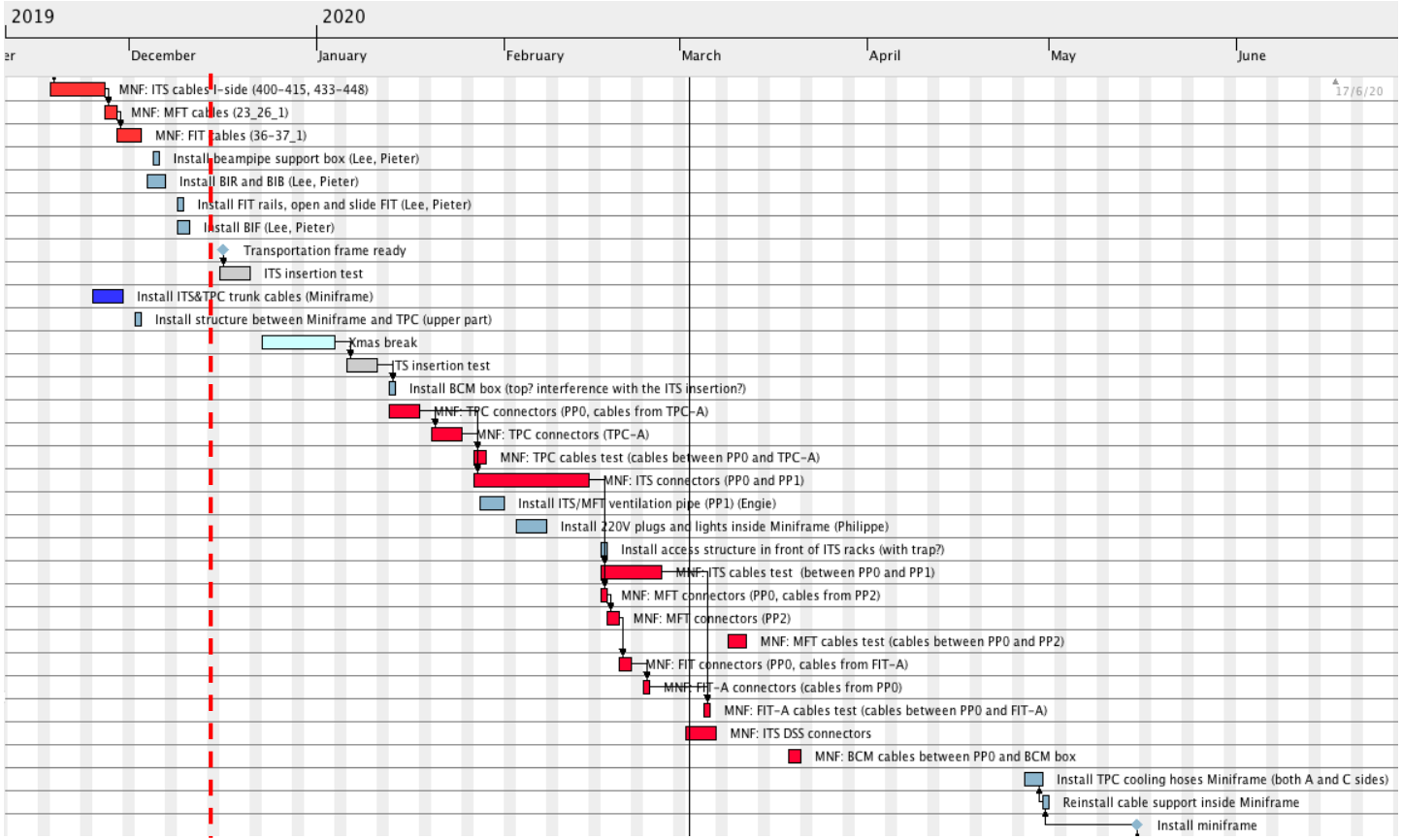
Progress pulling: 90%

Optical fibers (EN-EL)

Begin date	End date	D...
30/9/19	11/10/19	10
25/11/19	29/11/19	5
23/12/19	3/1/20	10
28/1/20	27/3/20	44
8/4/20	8/4/20	0
24/4/20	24/4/20	0
4/5/20	15/5/20	10
18/5/20	20/5/20	3

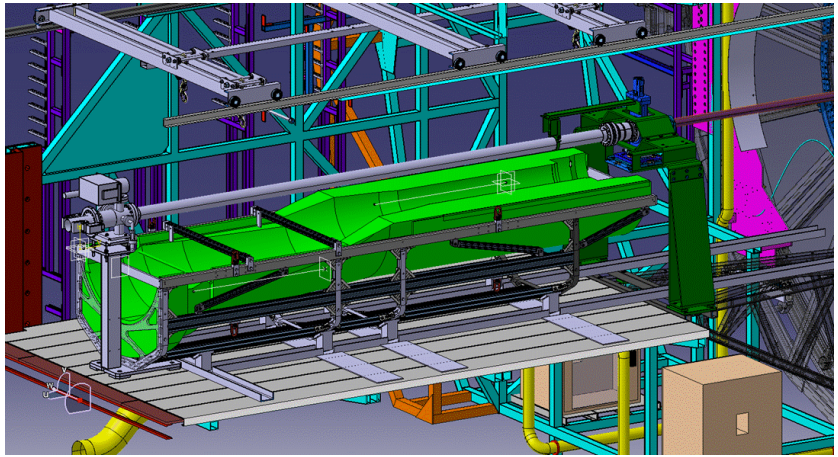


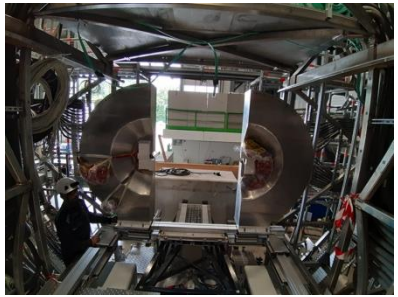
Miniframe schedule



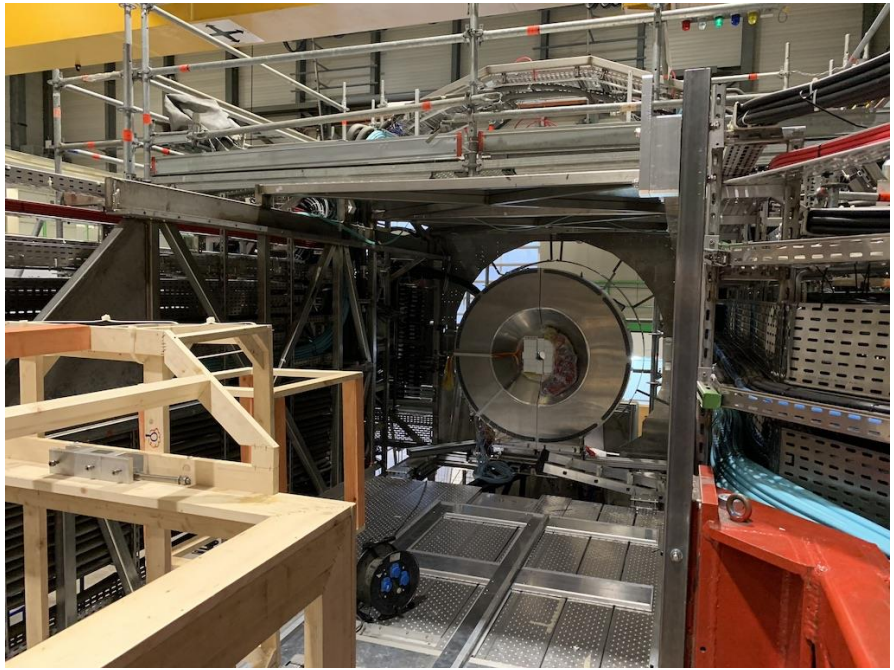
ITS insertion test (inside miniframe)

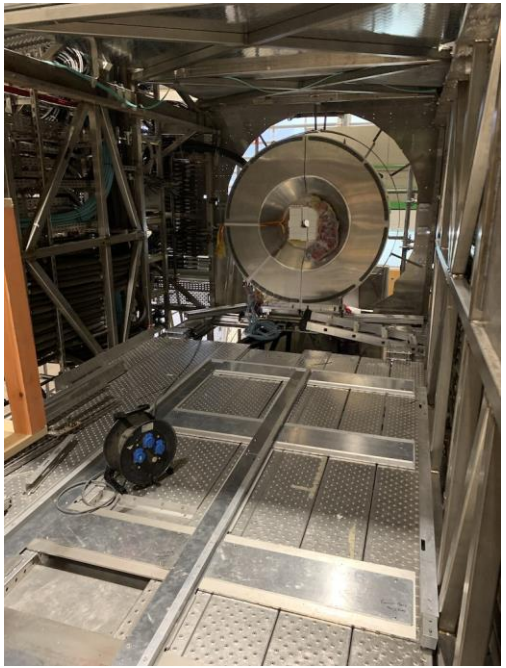
- **Goal: test insertion of MFT and ITS barrels through the miniframe**
- Empty transportation frame used for the insertion test
- Complexity of the operation due to:
  - Limited longitudinal space available between beampipe valve and compensator magnet
  - Limited crane aerial coverage due to L3 crown
- Various structures being produced and installed: Barrel Insertion Rails (BIR), Barrel Installation Bridge (BIB), beampipe table
- Test planned in w51





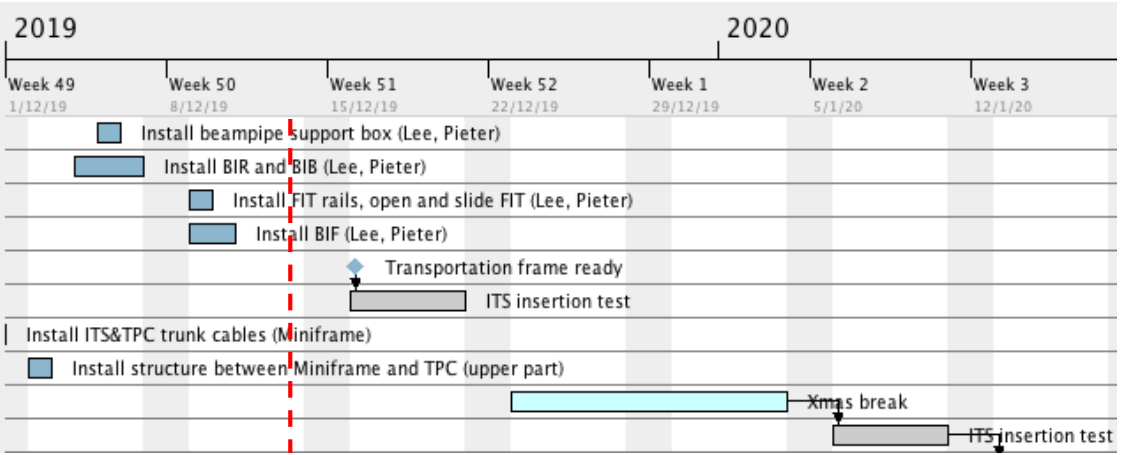
ITS insertion test (inside miniframe)



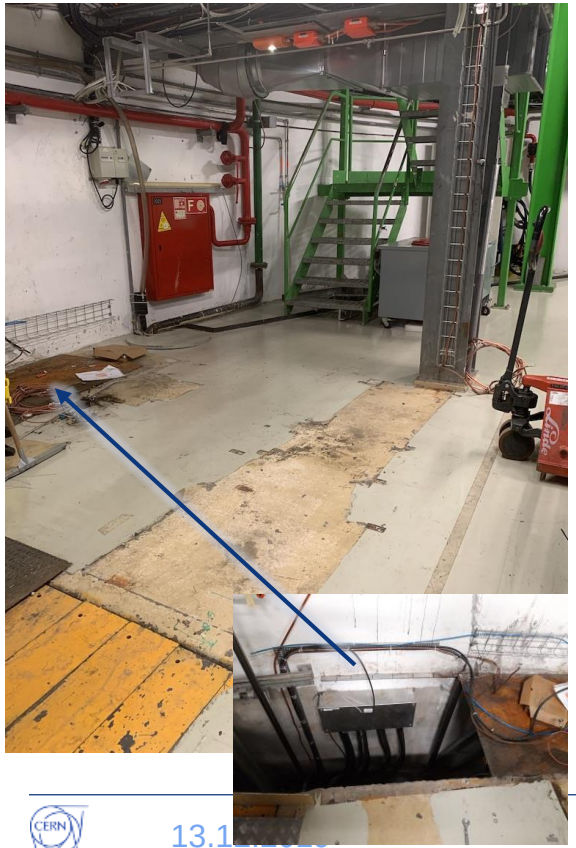


ITS insertion test (inside miniframe) - planning

Begin date	End date	Dura...
5/12/19	5/12/19	1
4/12/19	6/12/19	3
9/12/19	9/12/19	1
9/12/19	10/12/19	2
16/12/19	16/12/19	0
16/12/19	20/12/19	5
25/11/19	29/11/19	5
2/12/19	2/12/19	1
23/12/19	3/1/20	10
6/1/20	10/1/20	5

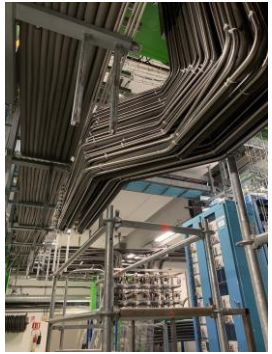


ITS and MFT cooling plants



- Area emptied
- Redo floor resin → w50
- Floor plates (ENGIE) → w2
- Install MFT cooling plant → w3
- ITS cooling plant mockup → w50/2
- Pre-assemble inox pipes (Rampower) → as from w2
- Install ITS cooling plant → w21
- Complete inox pipes (Rampower) → w22-23

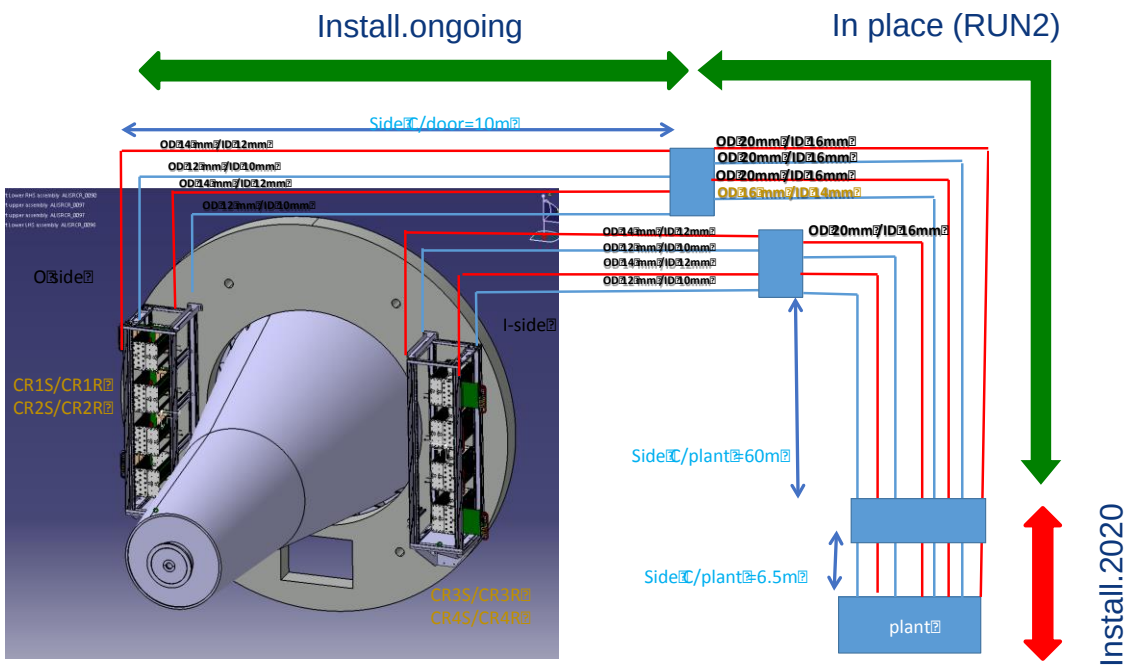
Old ITS plants in SU2

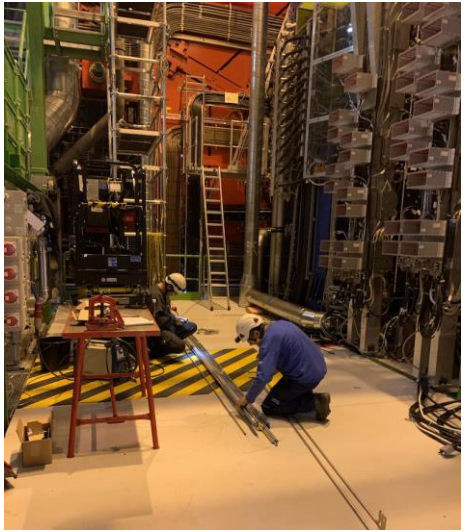


New ITS CP (b.167)

Old SSD-BPR and DSS cabinets

MFT cooling pipes (C-side)





L3 transformers

T1 reinstalled
T2 shipped to Germany (Miebach)

Access to CERN during Xmas closure

- As usual, the CERN premises (Meyrin, P2) will be closed during the two weeks of closure. Please send us an email before December 18th if you think you will need access during this time.

- Daily tours will be organized, details coming up soon. In the meanwhile please let us know if anything has to be specially watched/monitored.

- We advice to switch off your equipment as much as possible, leaving operational only what is strictly needed.

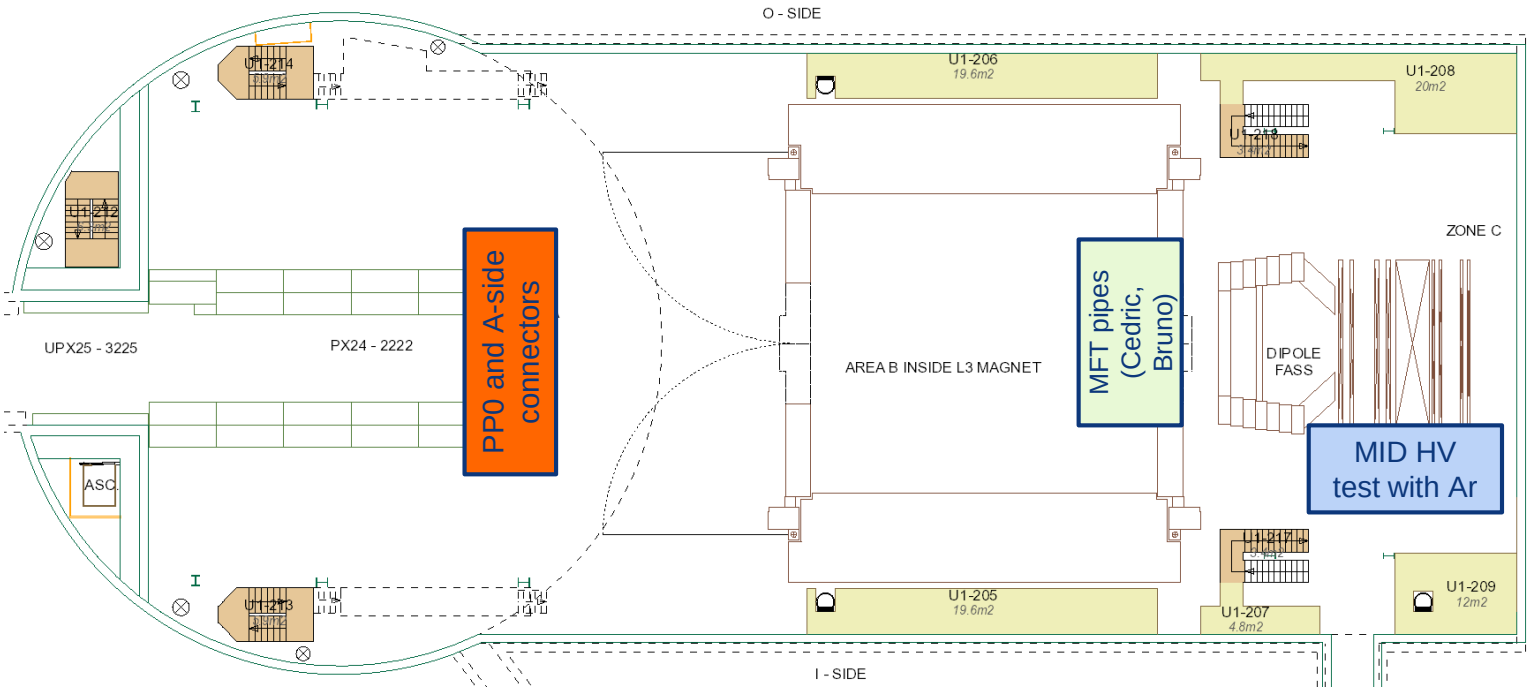
EOY activities

- Siren tests: 24 Dec

Day-by-day sequence w50

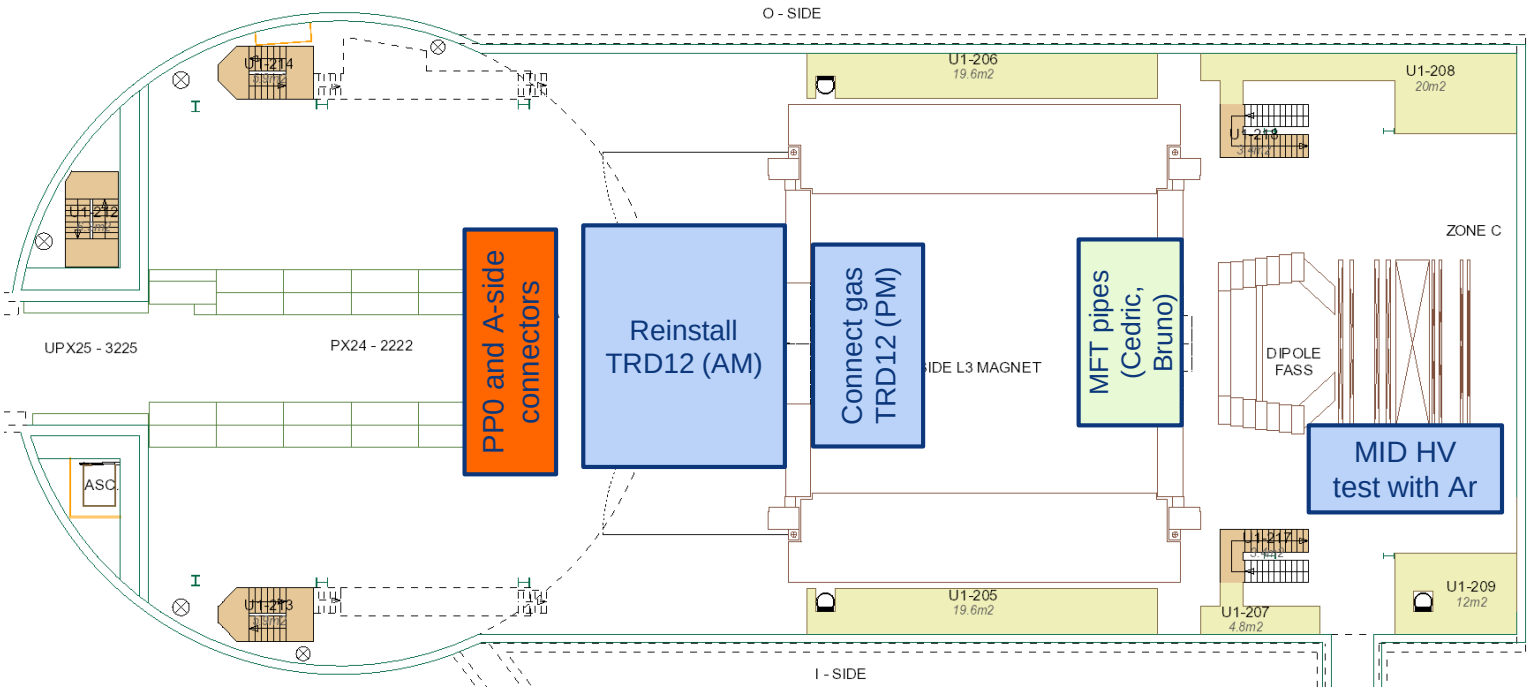
ALICE technicians	Institutes	Transport	Scaffolding	EN-EA	Other CERN groups
Pakistani team	EN-EL	Rampower			

UX25 activities w50 – Mon 9 Dec 2019



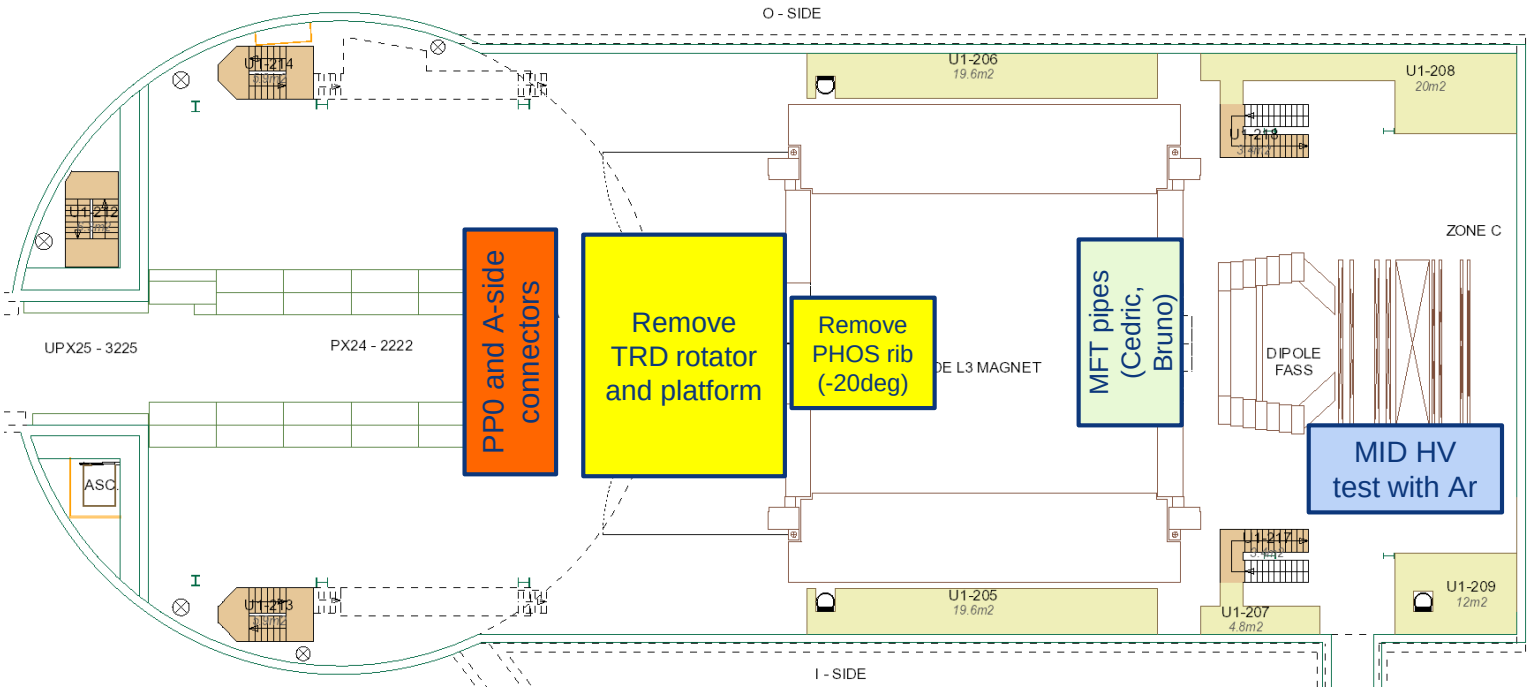
UX25 activities w50 – Tue 10 Dec 2019

ALTEAD: delivery L3 transformer #1, transport transformer #2 to Germany (open SXL2 big door) (AM)



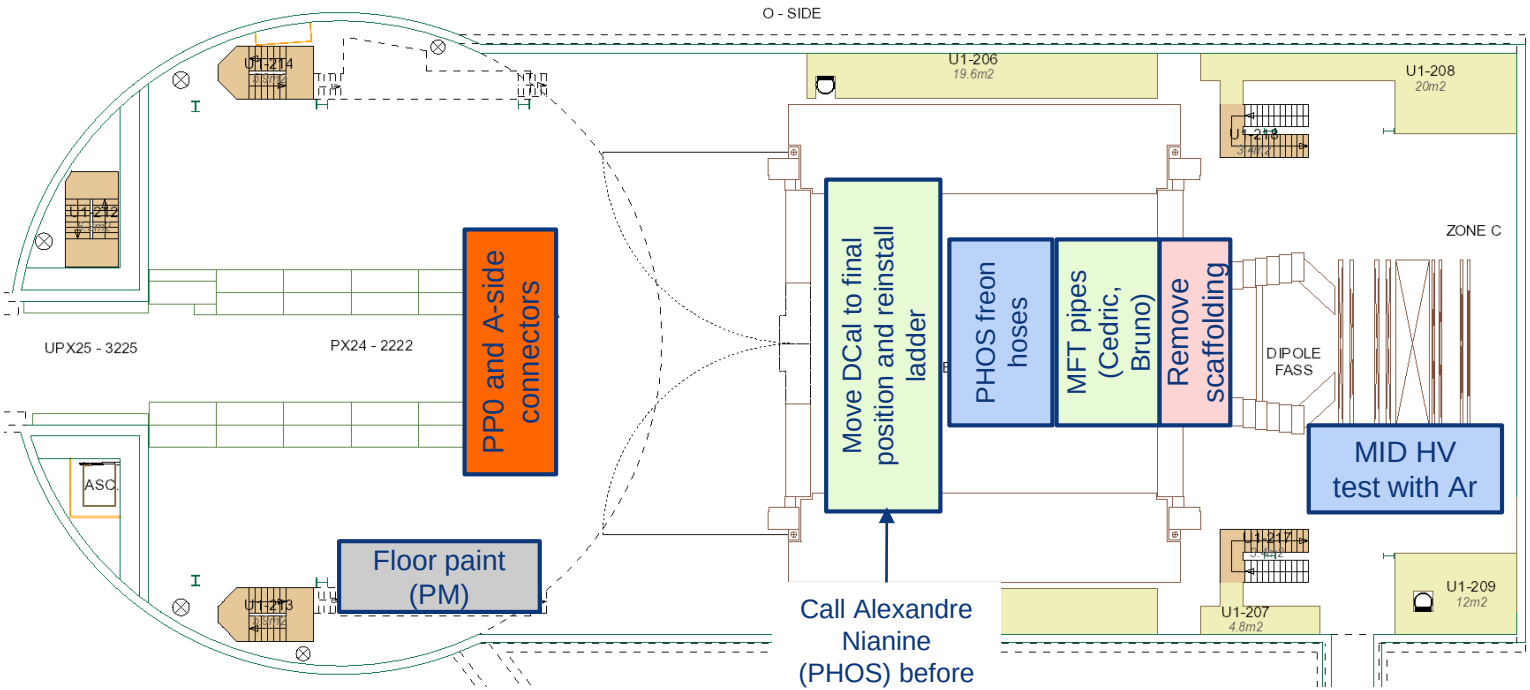
UX25 activities w50 – Wed 11 Dec 2019

Unmount and store TRD platform

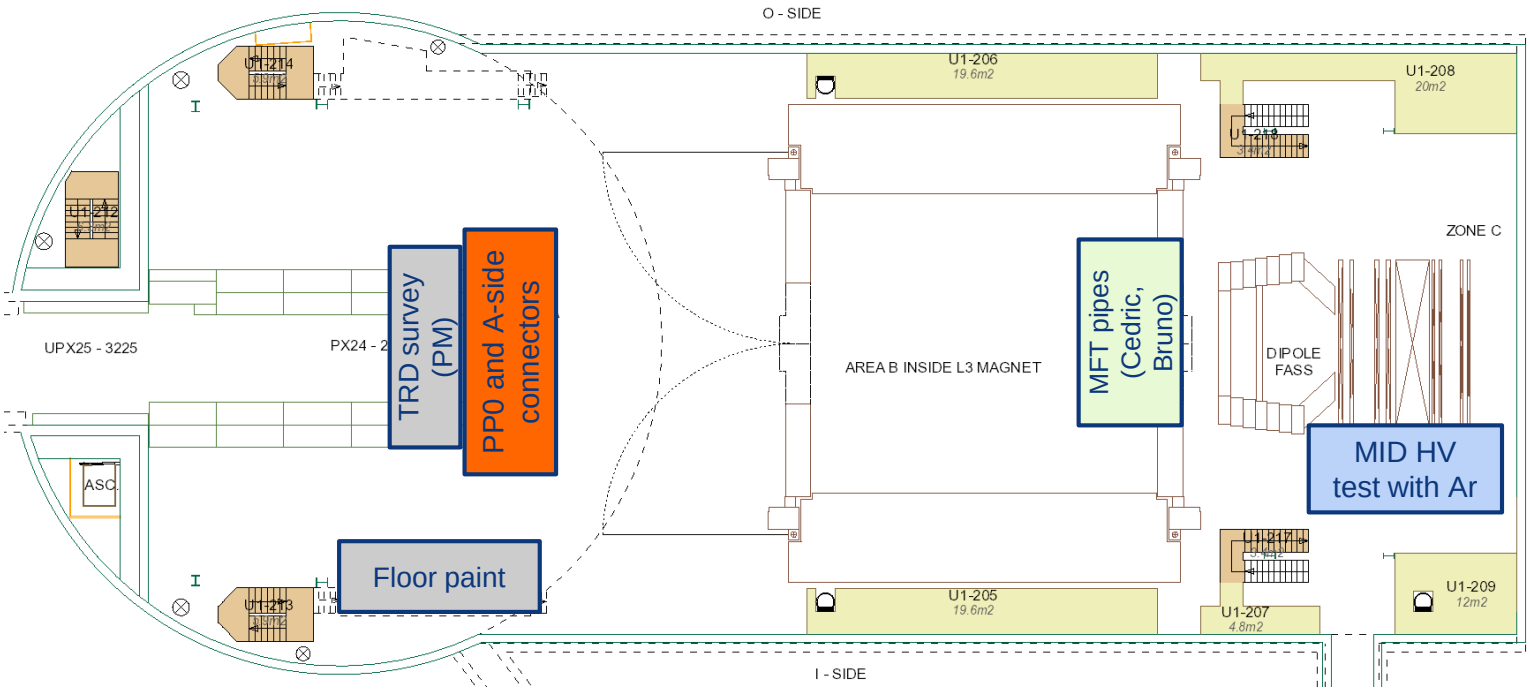


UX25 activities w50 – Thu 12 Dec 2019

Cleaning cavern (Topnet)

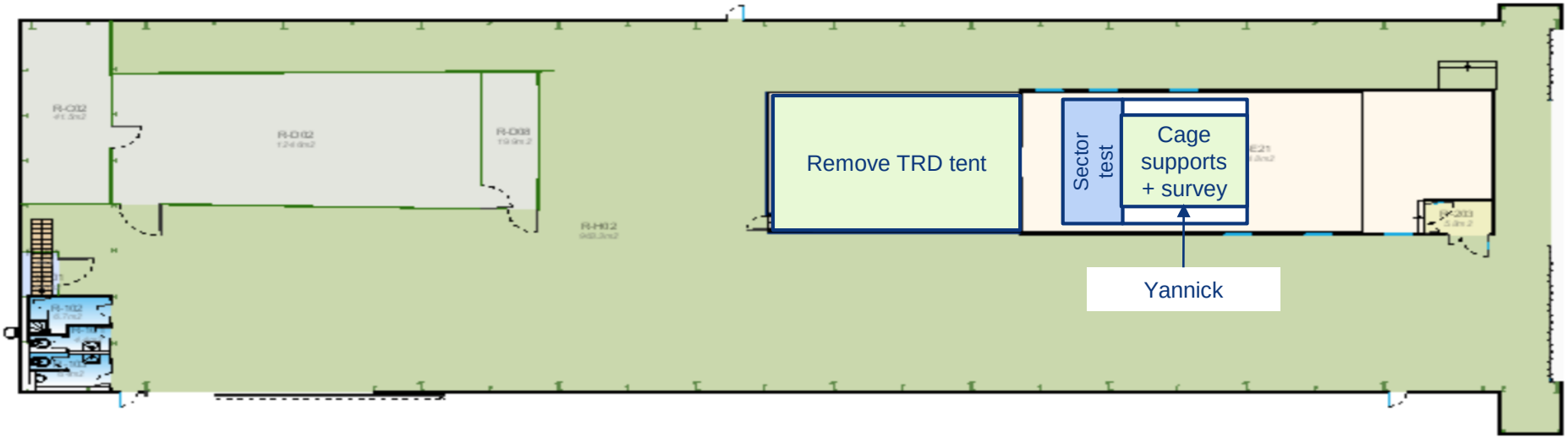


UX25 activities w50 – Fri 13 Dec 2019



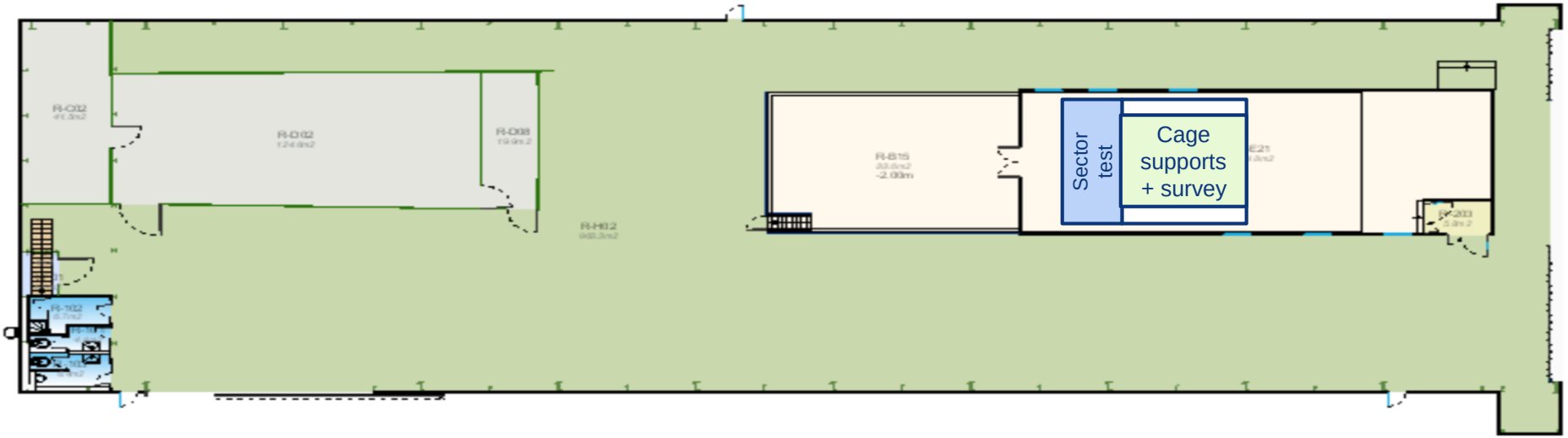
SXL2 activities w50 – Mon 9 Dec 2019

Test TPC A-side with X-ray source (night)



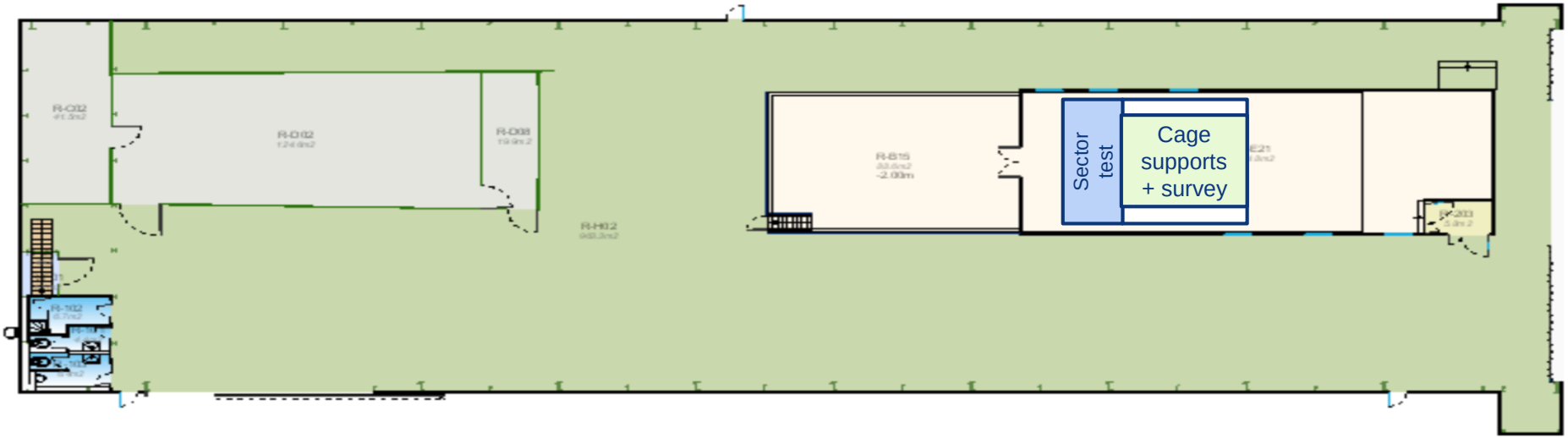
SXL2 activities w50 – Tue 10 Dec 2019

Test TPC A-side with X-ray source (night)



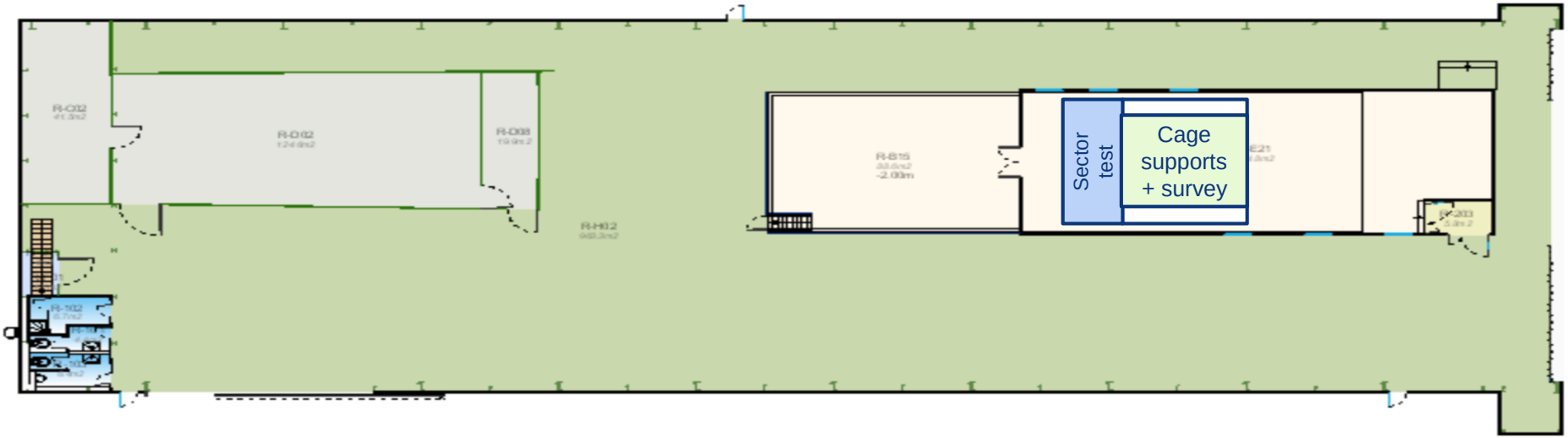
SXL2 activities w50 – Wed 11 Dec 2019

Test TPC A-side with X-ray source (night)



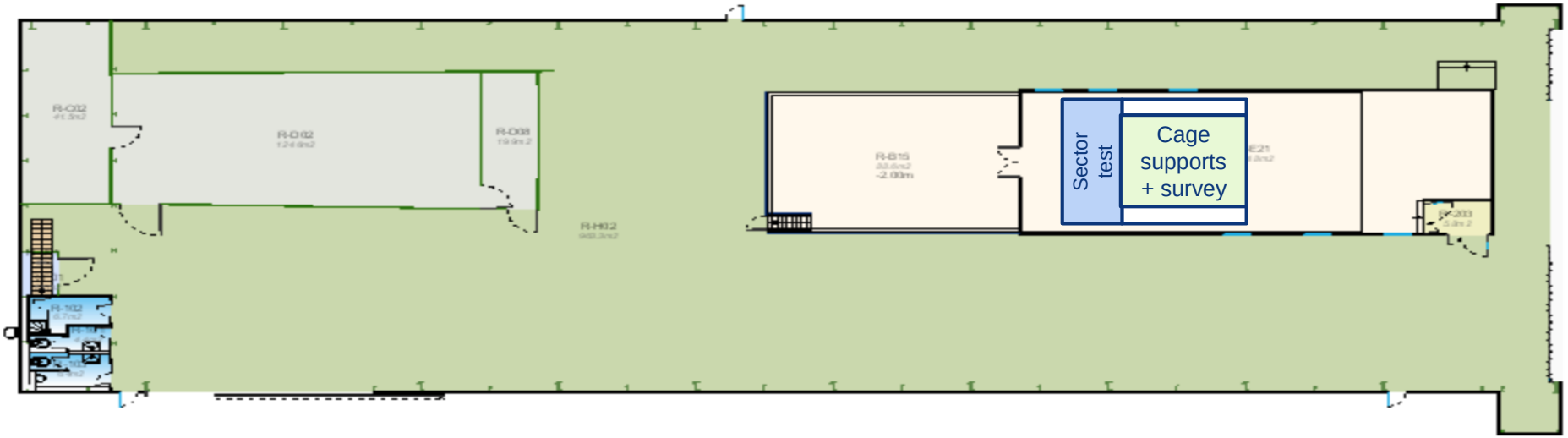
SXL2 activities w50 – Thu 12 Dec 2019

Test TPC A-side with X-ray source (night)



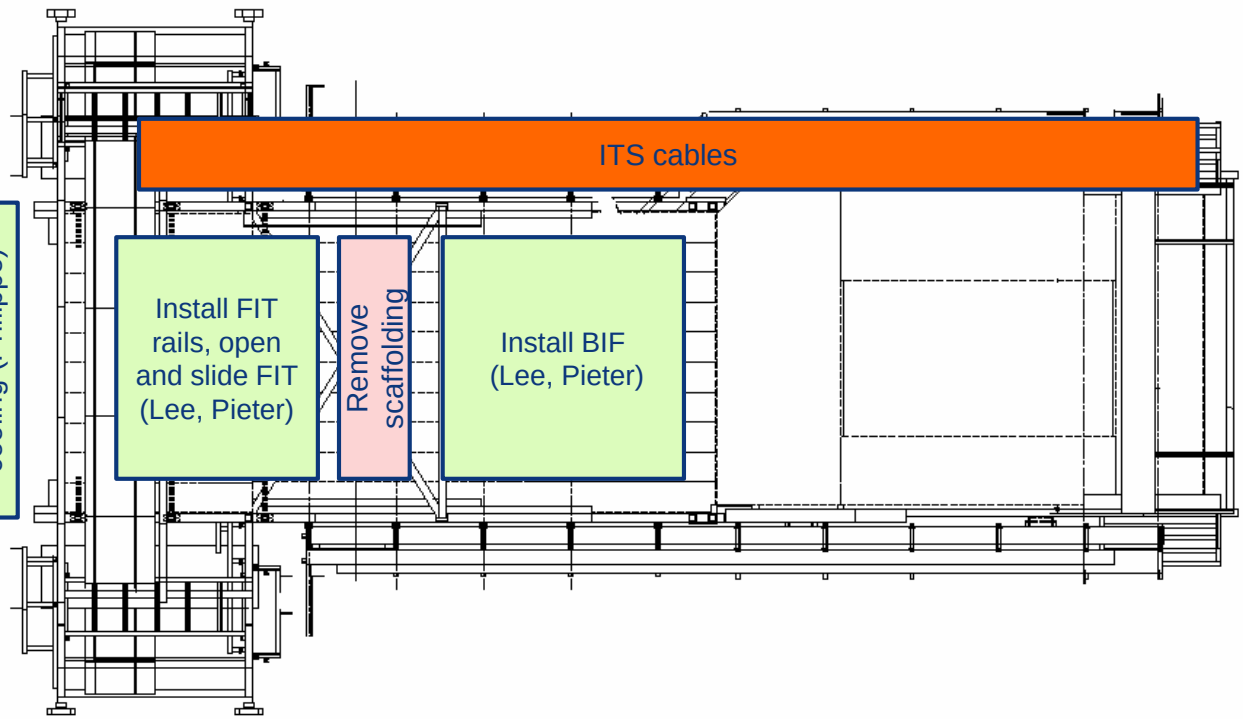
SXL2 activities w50 – Fri 13 Dec 2019

Test TPC A-side with X-ray source (night)

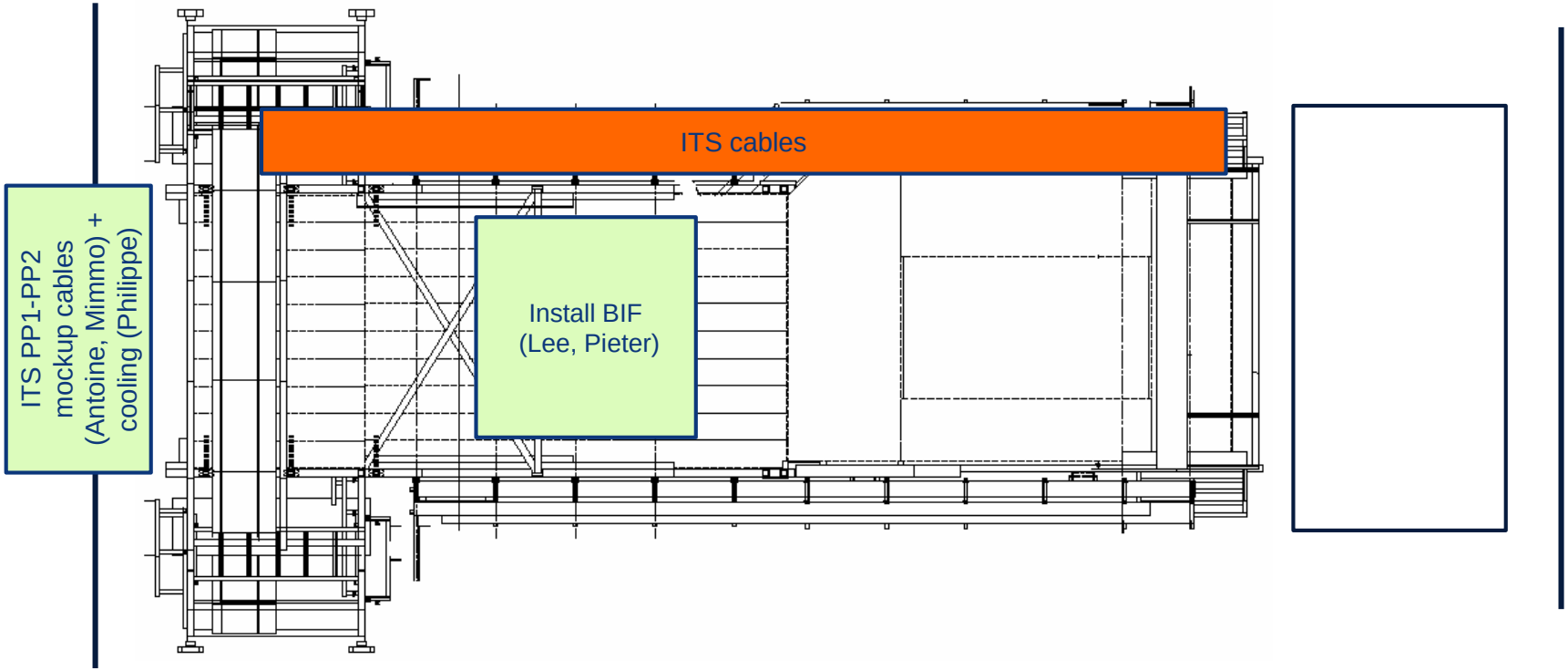


Miniframe activities w50 – Mon 9 Dec 2019

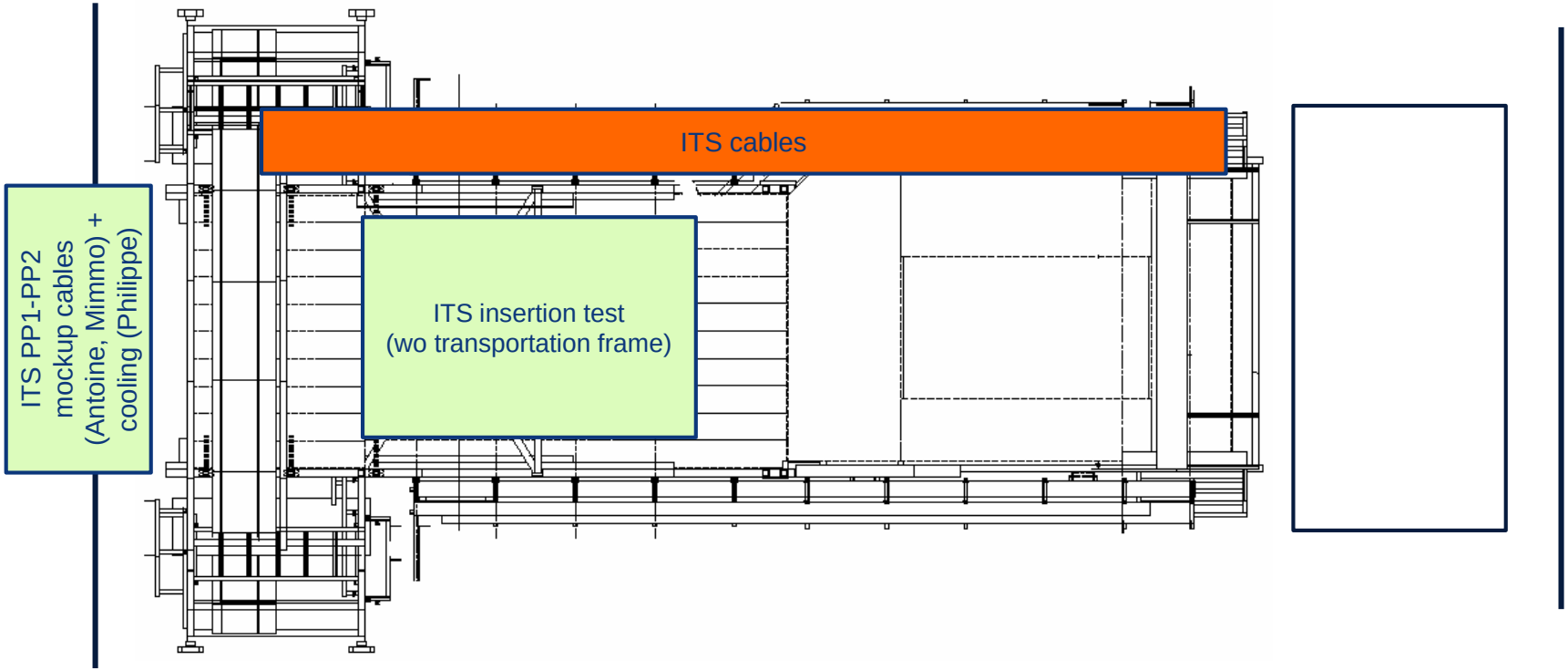
Cleaning miniframe (Elior)



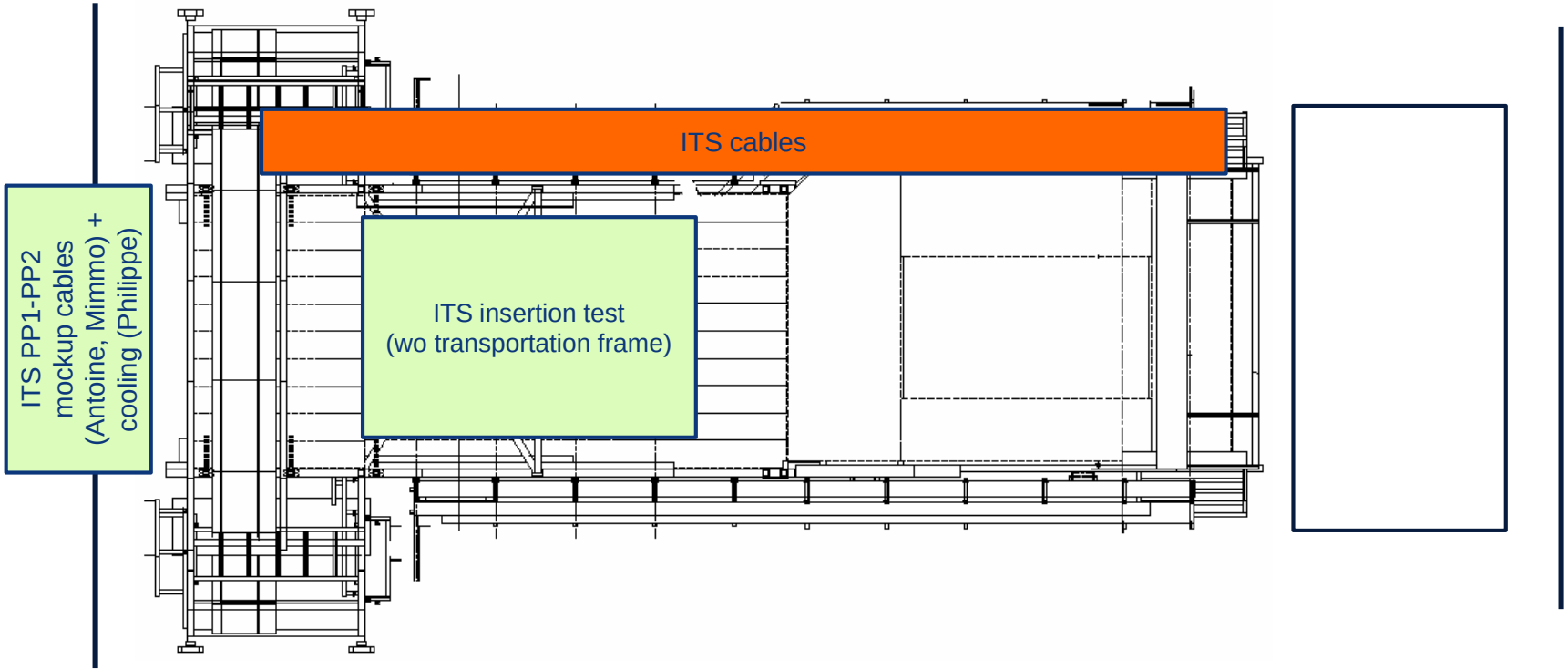
Miniframe activities w50 – Tue 10 Dec 2019



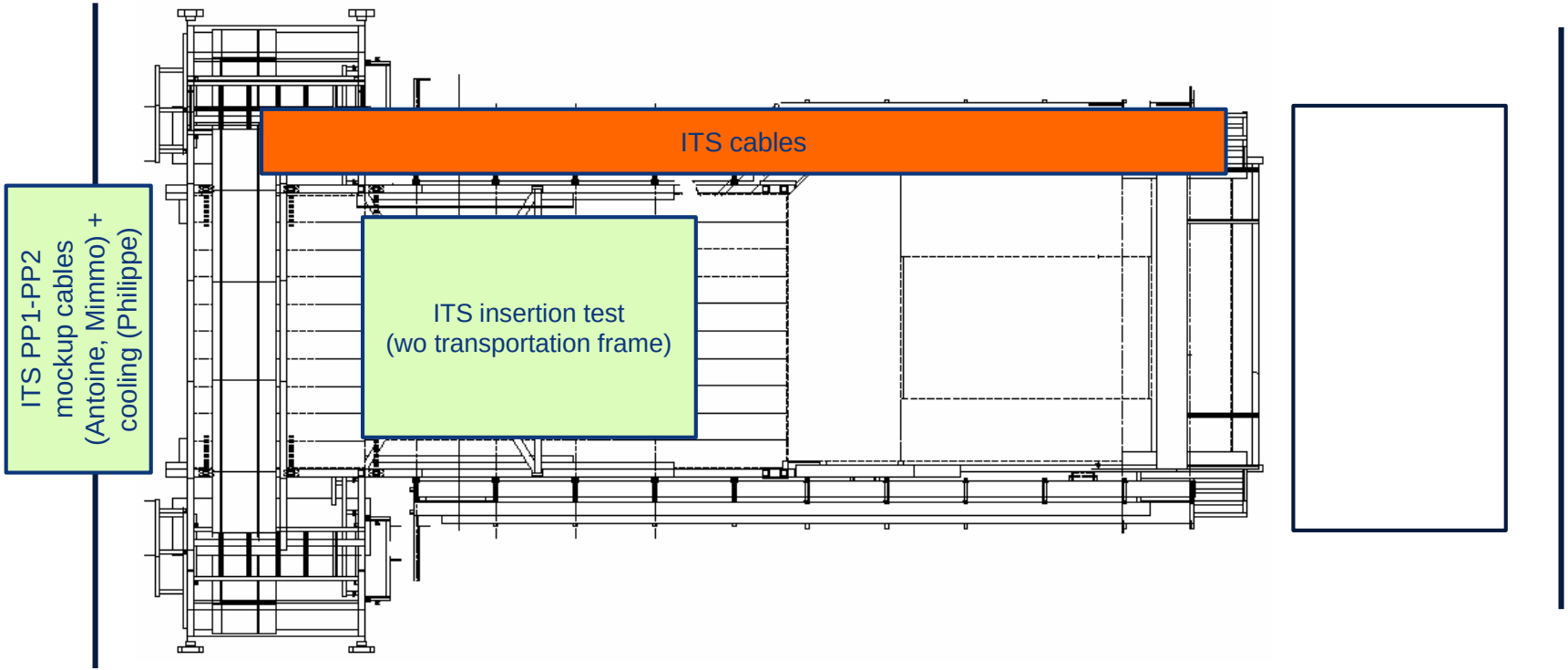
Miniframe activities w50 – Wed 11 Dec 2019



Miniframe activities w50 – Thu 12 Dec 2019



Miniframe activities w50 – Fri 13 Dec 2019



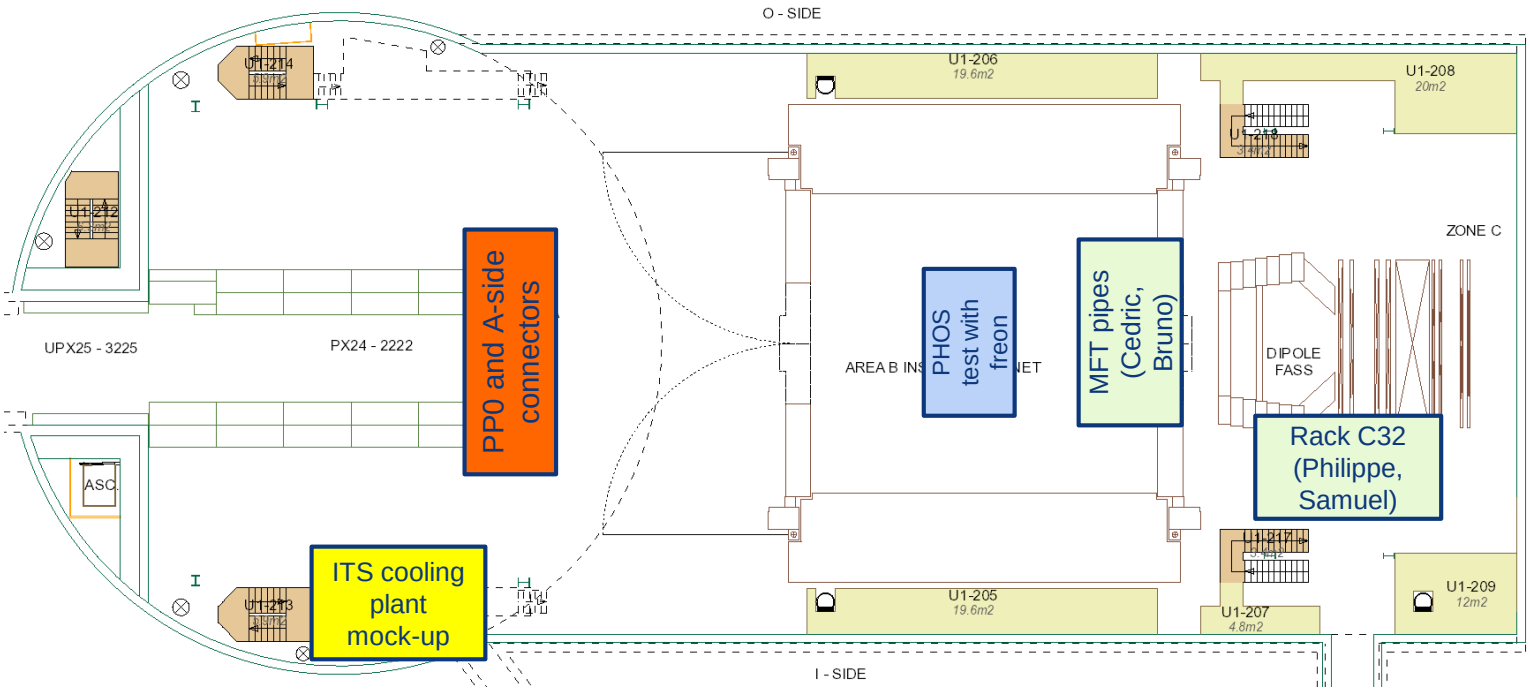
Day-by-day sequence w51

ALICE technicians	Institutes	Transport	Scaffolding	EN-EA	Other CERN groups
Pakistani team	EN-EL	Rampower			

UX25 activities w51 – Mon 16 Dec 2019

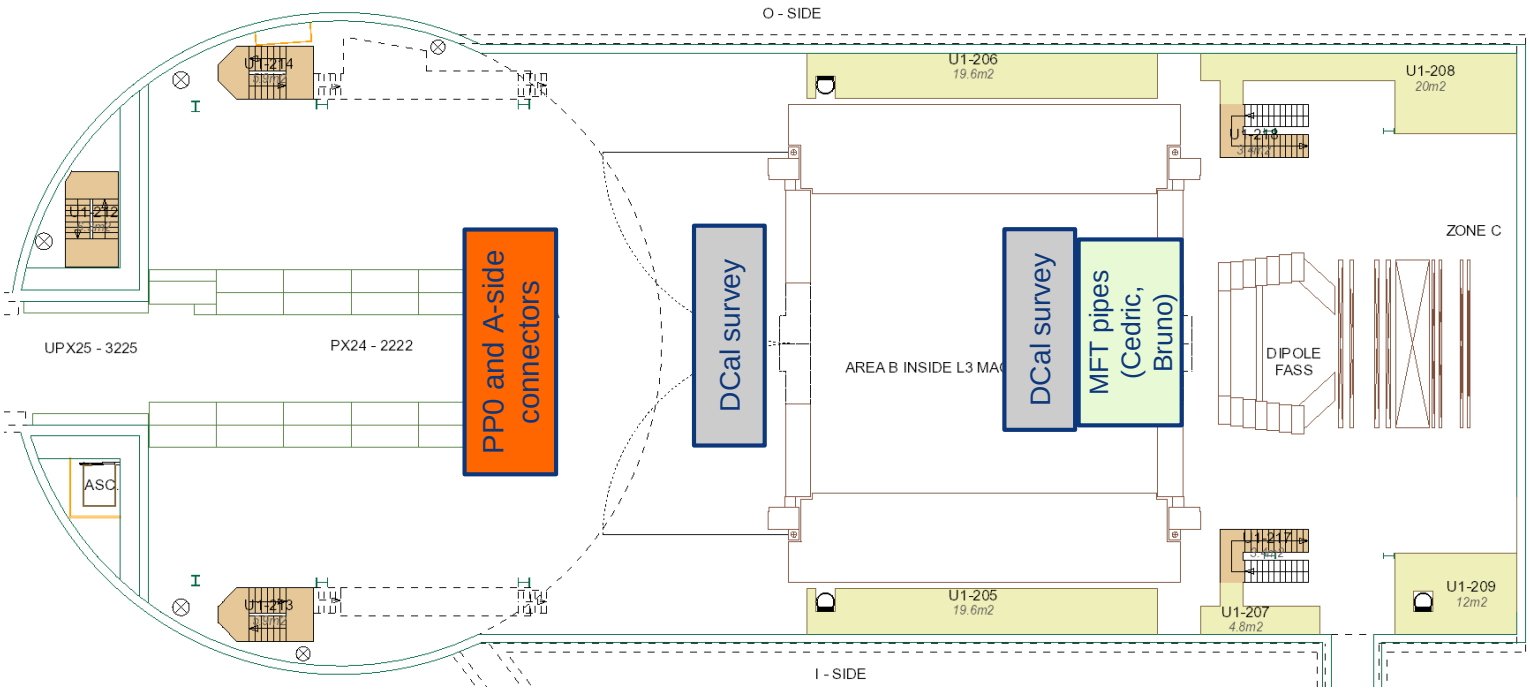
Test SD2 pressurized tank – no access to SD2 after 17:30

Cleaning sniffer tubes (Didier, 10:30)



UX25 activities w51 – Tue 17 Dec 2019

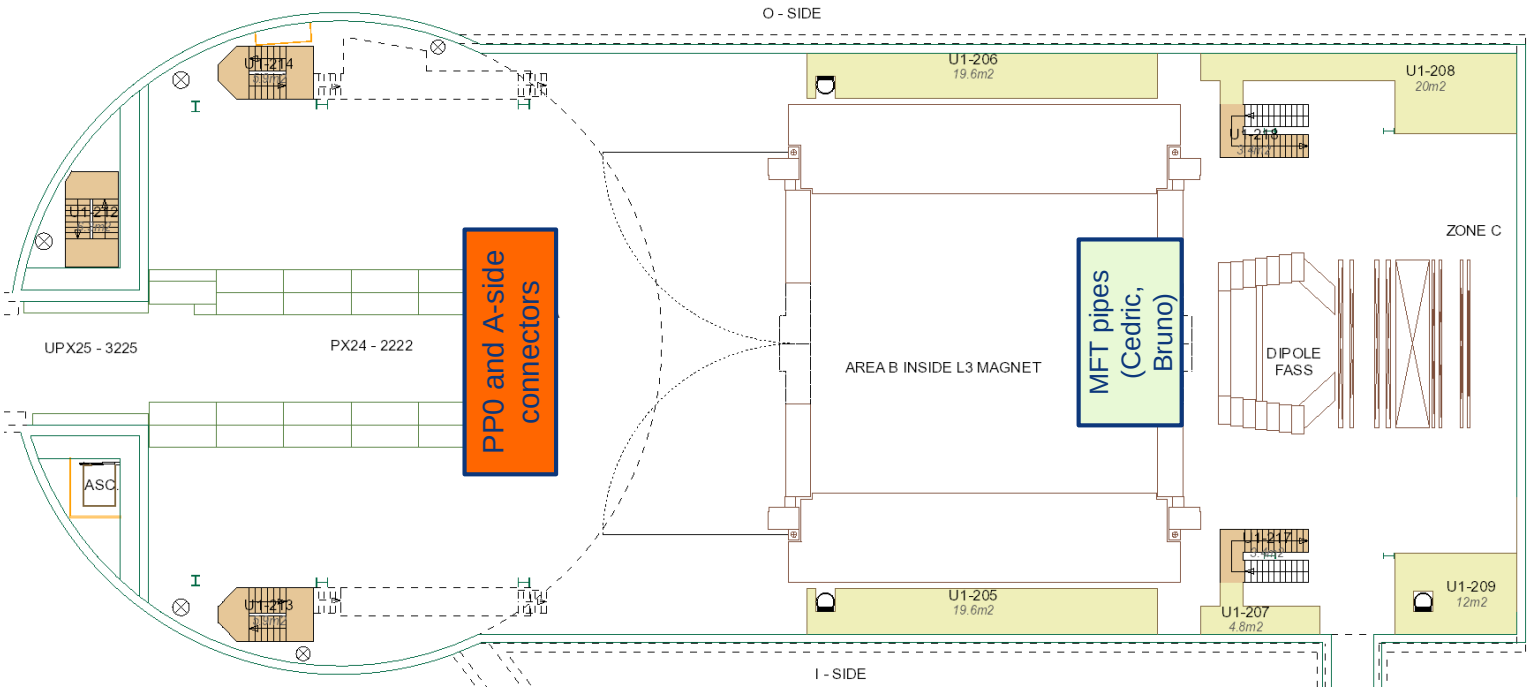
EN-CV: stop demineralized water (17 to 20/12)



UX25 activities w51 – Wed 18 Dec 2019

Various interventions UX25 crane (won't stop the crane)

ALTEAD+P2tech: remove 13 racks from CR3 (PM, tbc)

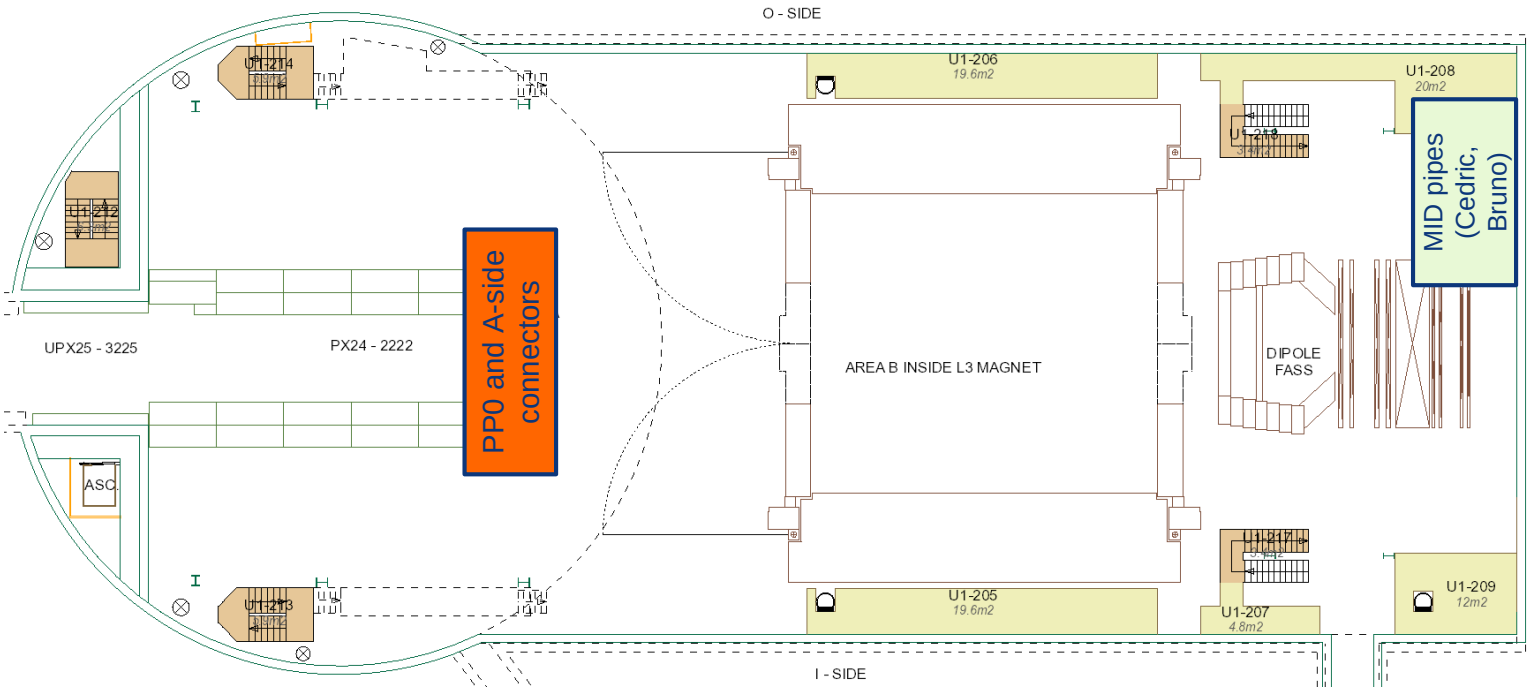


UX25 activities w51 – Thu 19 Dec 2019

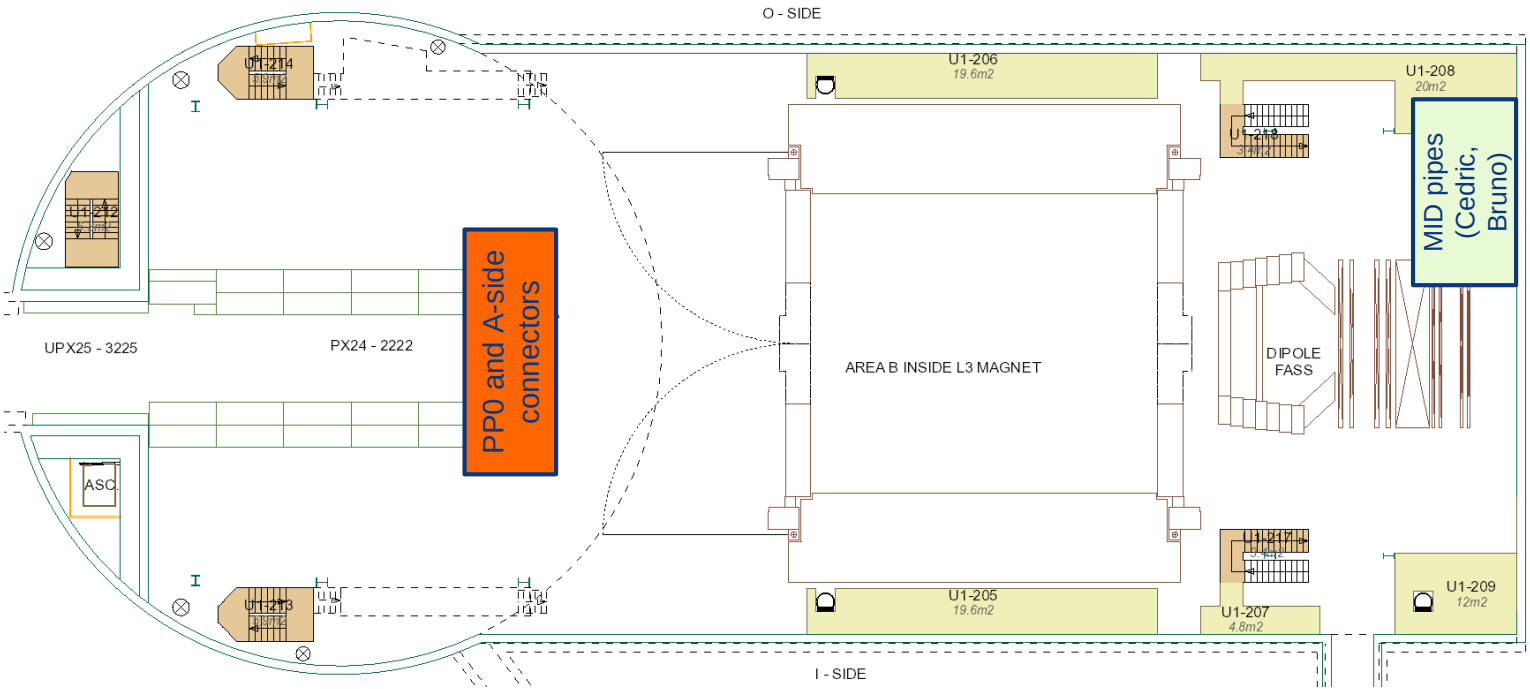
Cleaning cavern (Topnet)

UX25 cavern lift: remove wooden panels

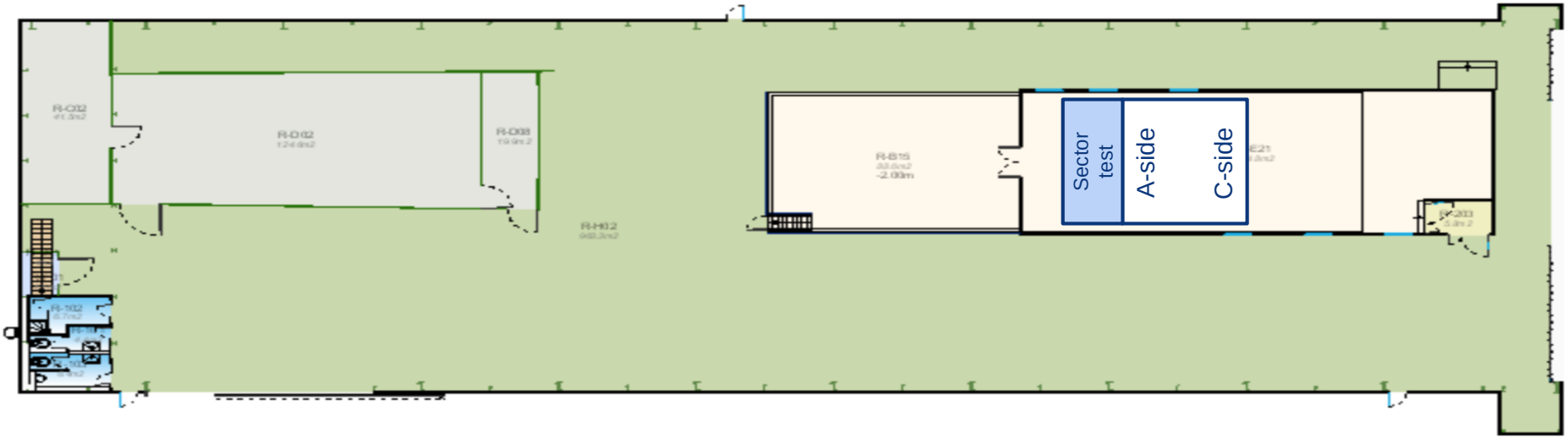
Maintenance SX2 crane



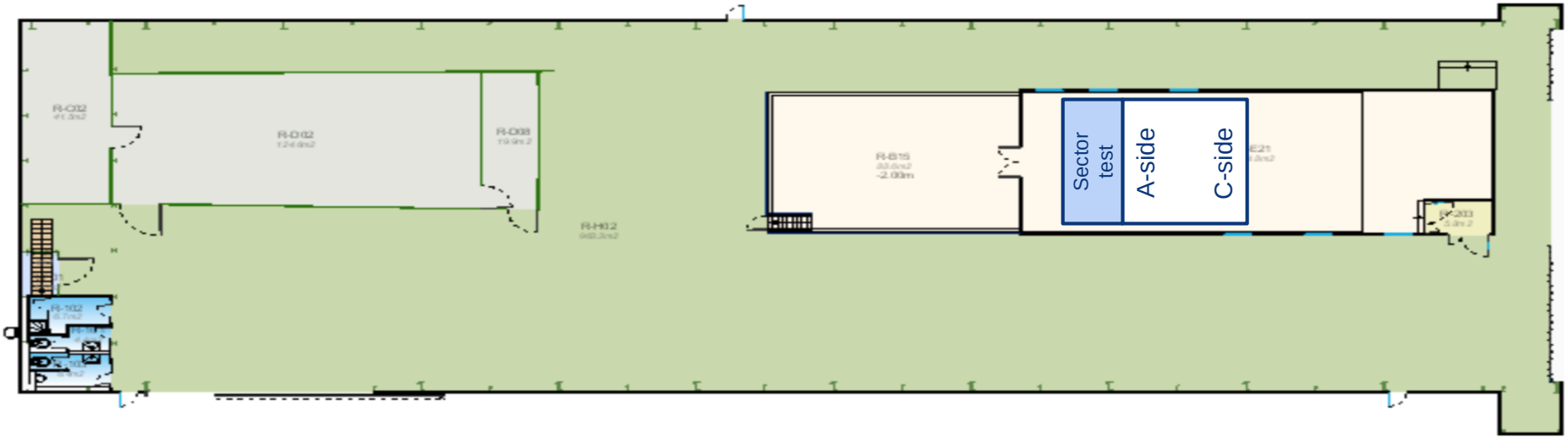
UX25 activities w51 – Fri 20 Dec 2019



SXL2 activities w51 – Mon 16 Dec 2019

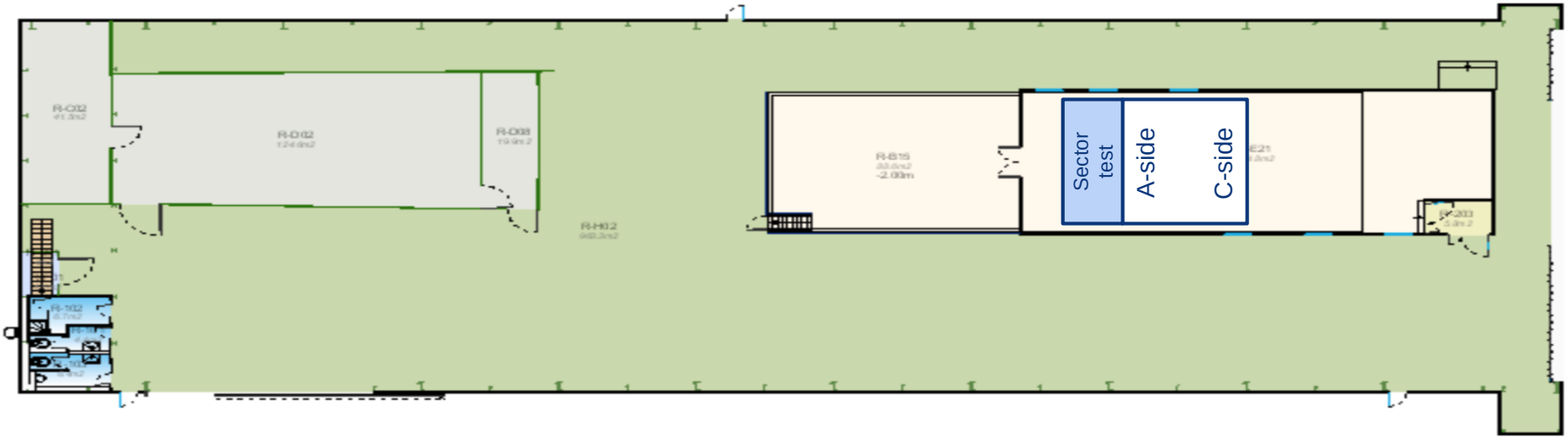


SXL2 activities w51 – Tue 17 Dec 2019

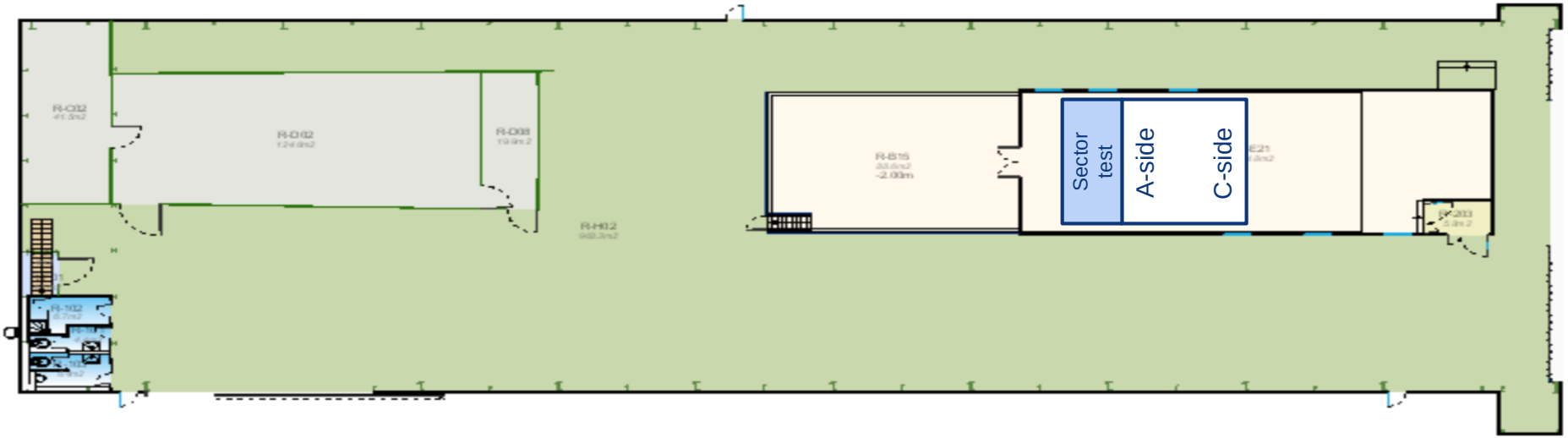


SXL2 activities w51 – Wed 18 Dec 2019

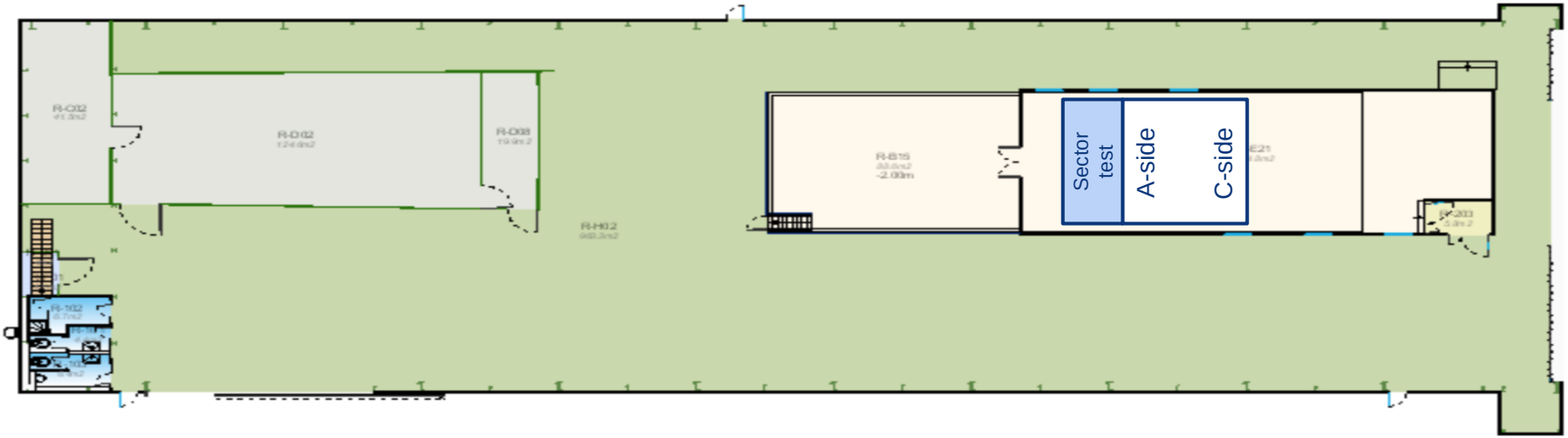
EN-HE+HSE: load test miniframe spreader (SXL2, 9:30)



SXL2 activities w51 – Thu 19 Dec 2019

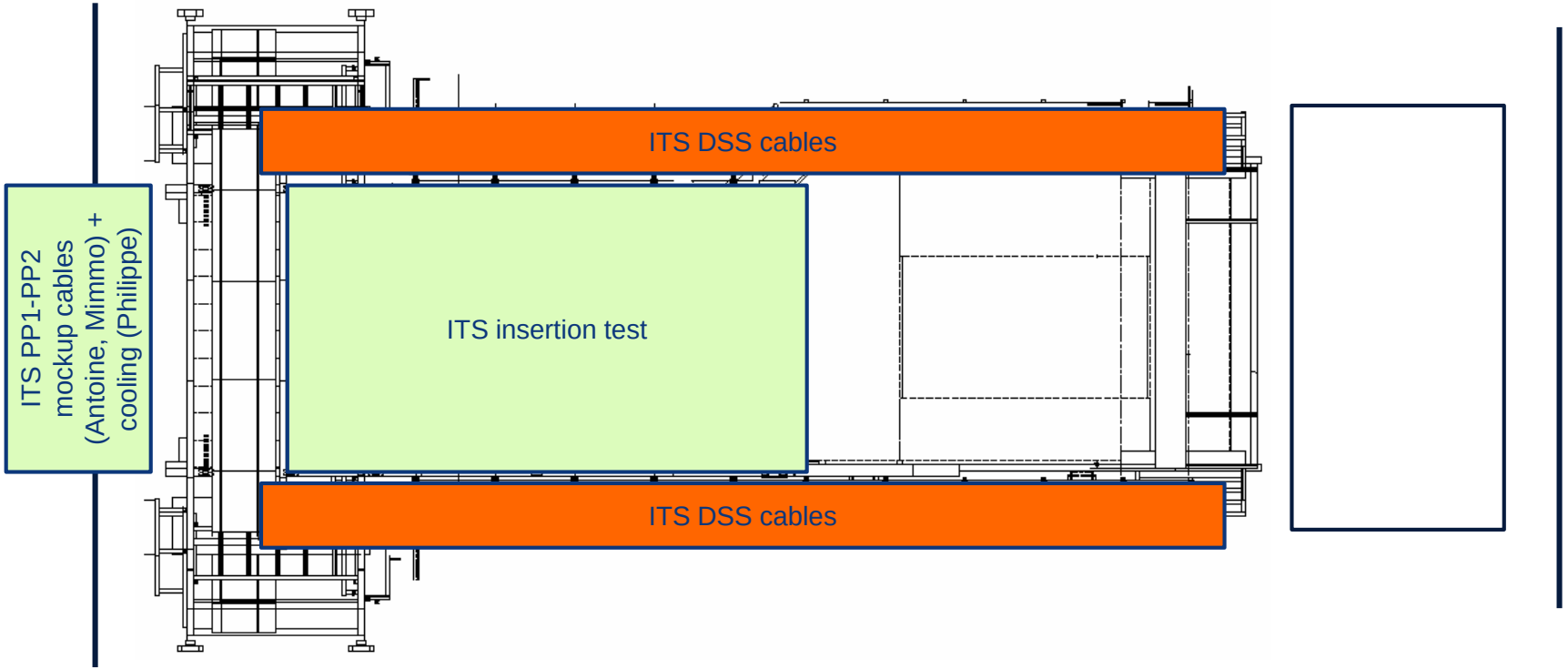


SXL2 activities w51 – Fri 20 Dec 2019

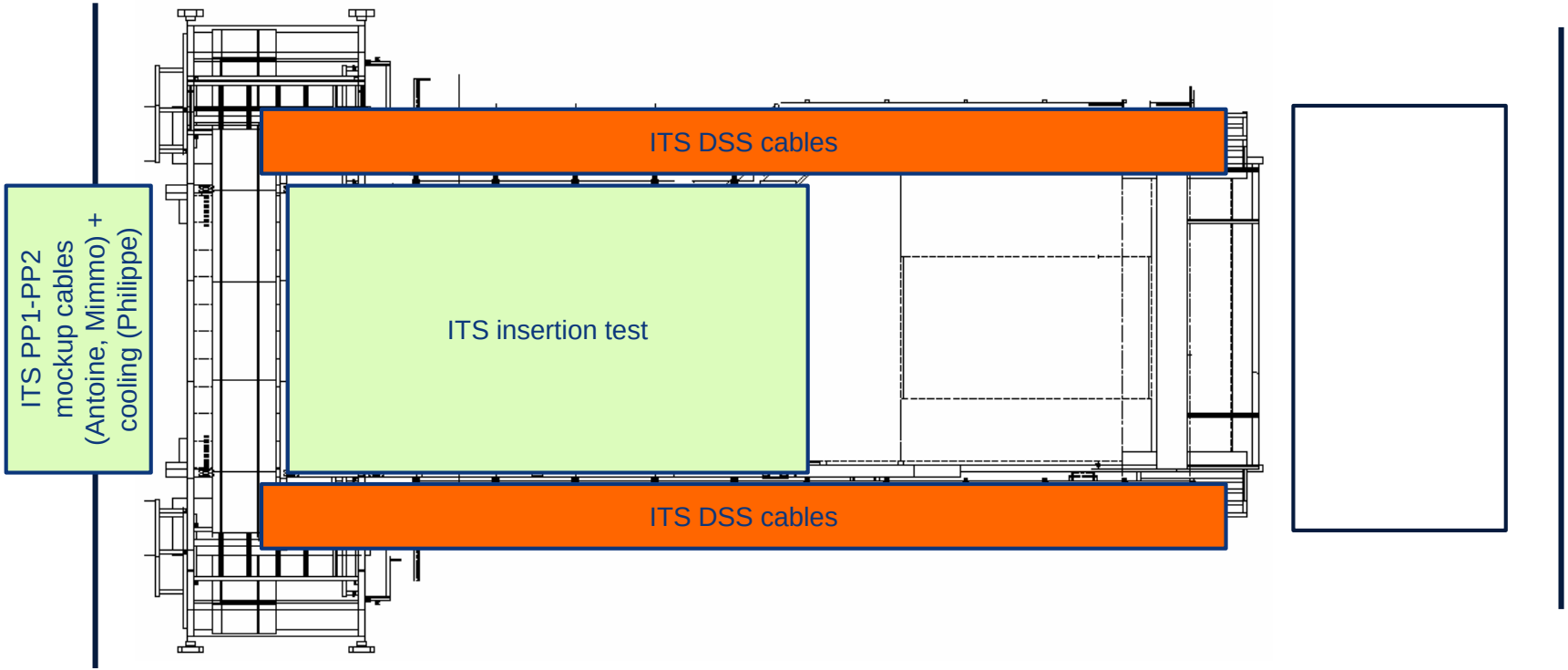


Miniframe activities w51 – Mon 16 Dec 2019

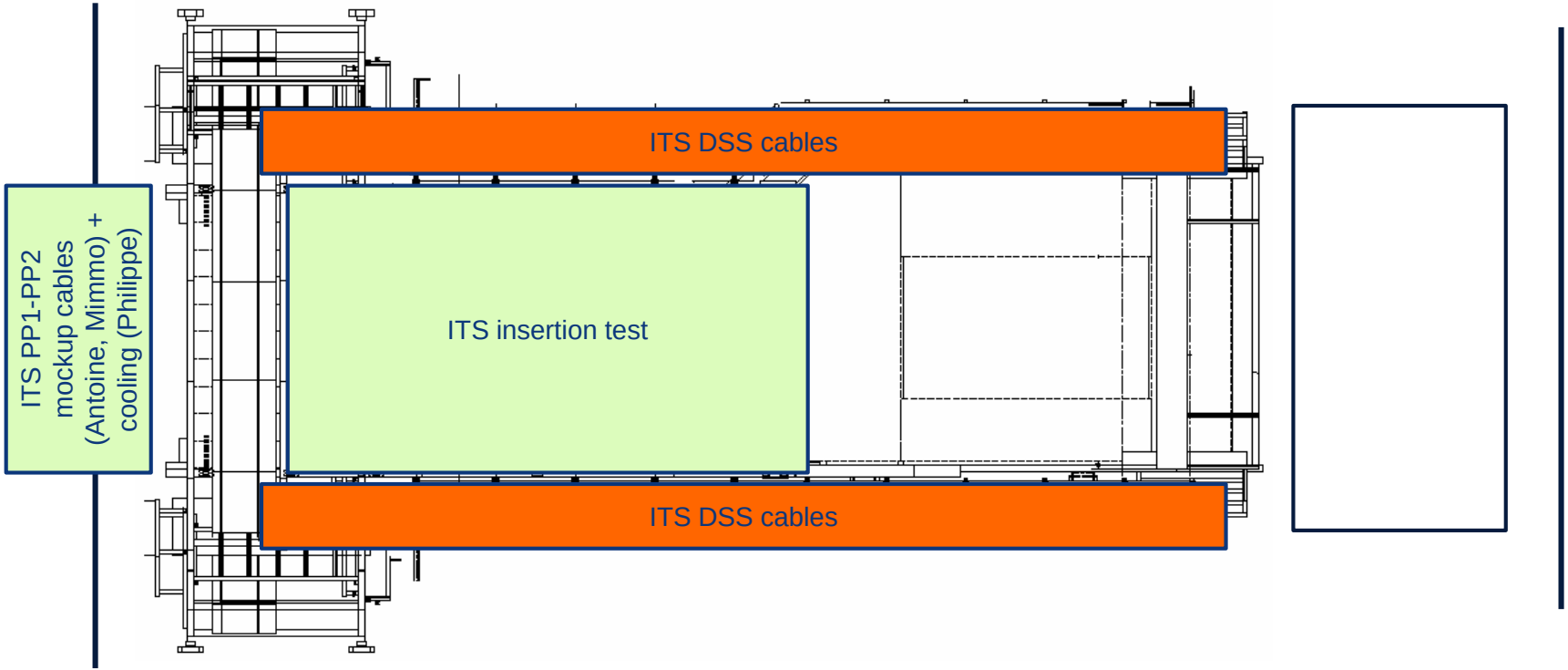
Cleaning miniframe (Elior)



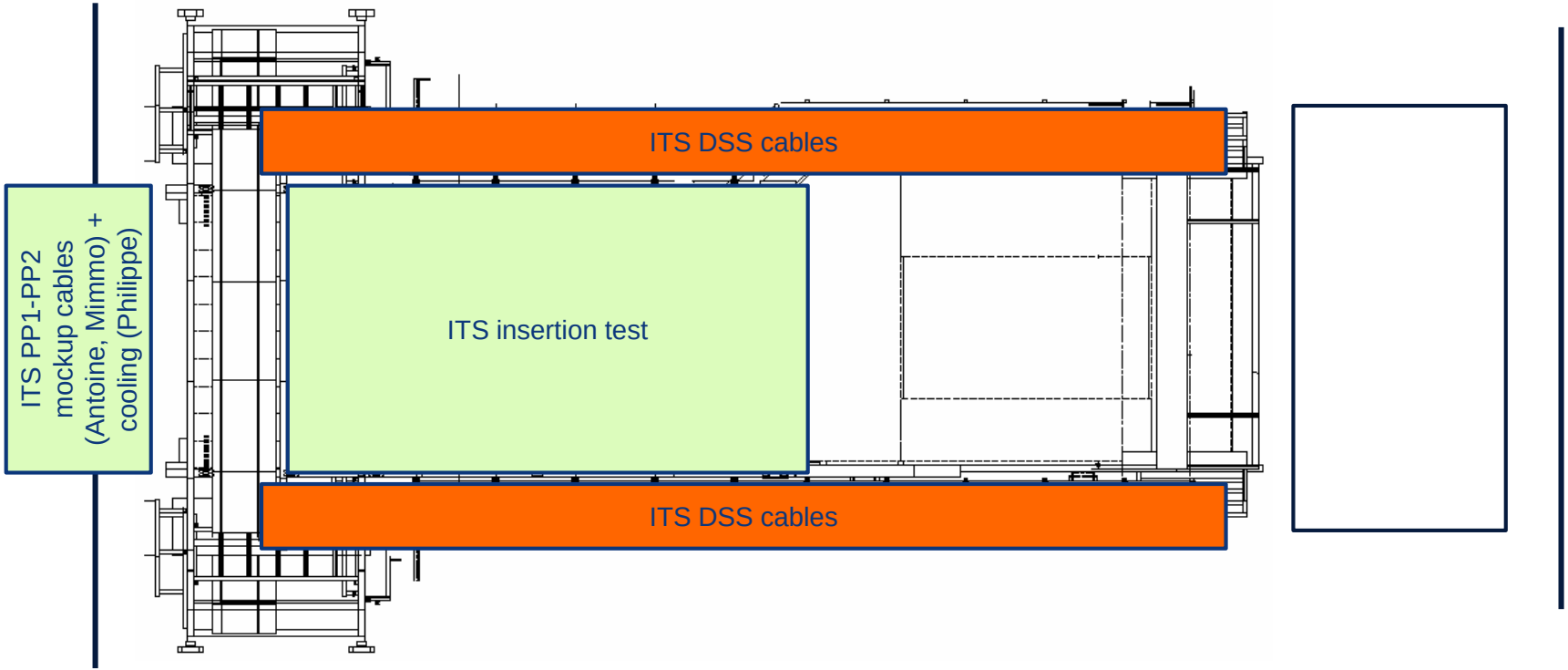
Miniframe activities w51 – Tue 17 Dec 2019



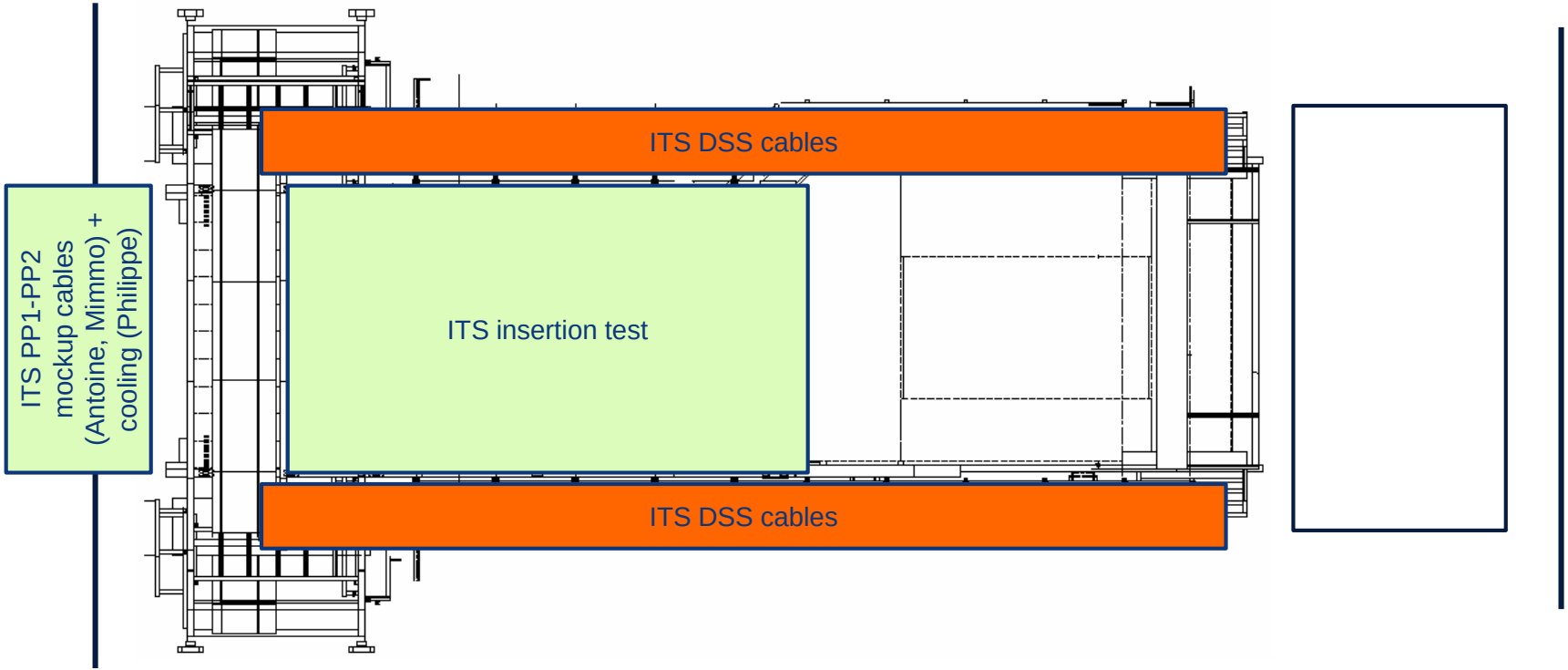
Miniframe activities w51 – Wed 18 Dec 2019



Miniframe activities w51 – Thu 19 Dec 2019



Miniframe activities w51 – Fri 20 Dec 2019



AOB

- Next meeting Friday 10 January 2020