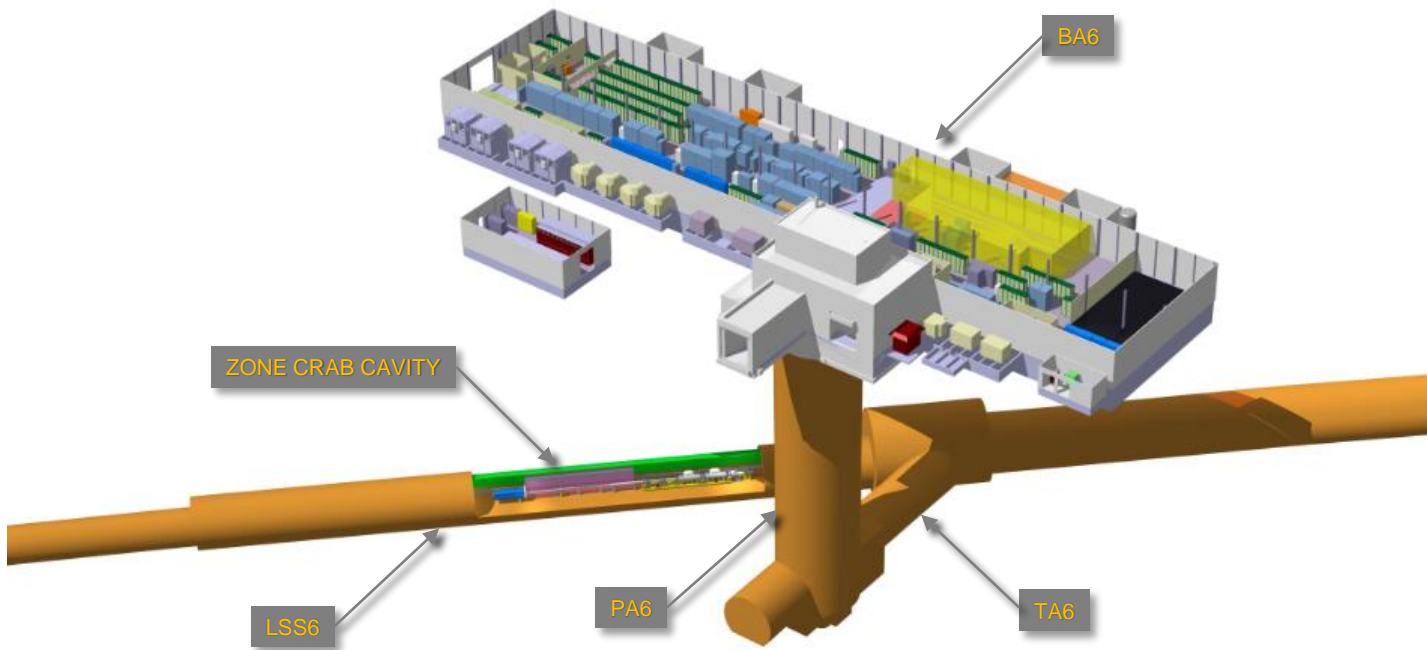


EDMS 1738907

Planning of the SPS crab-cavity test stand activities in EYETS2016-2017

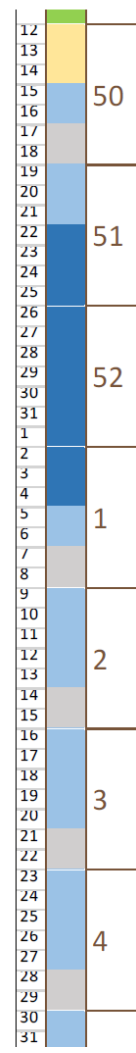
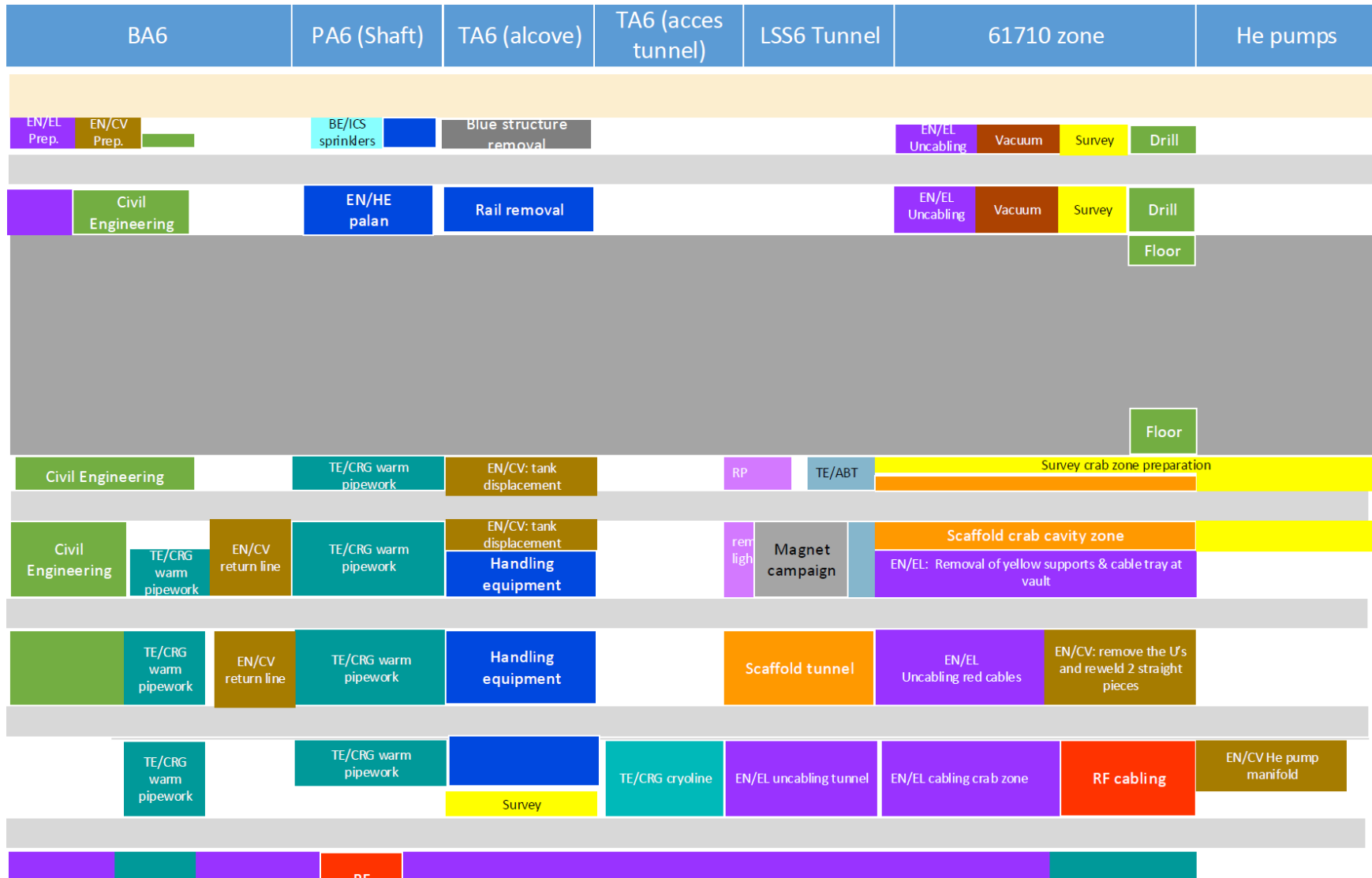
Giovanna Vandoni

# **BA6 Crab cavity test-stand EYETS SEQUENCING**

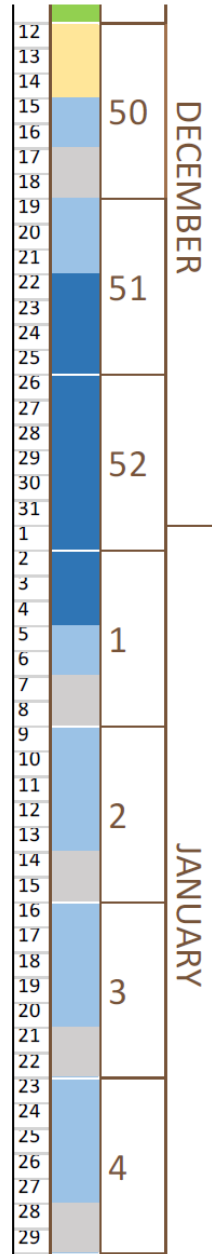
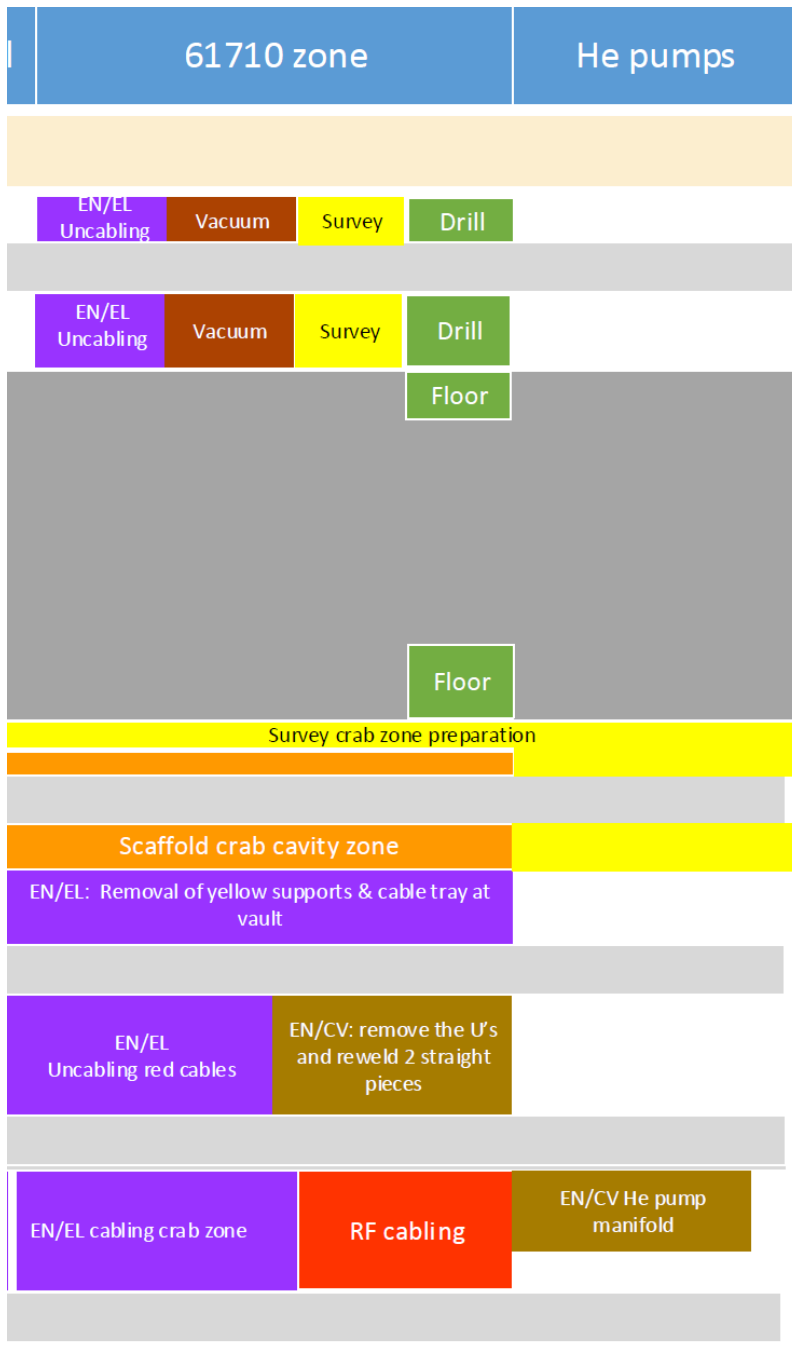


# GENERAL DATES

Activity	Start	End	Duration	Comment
EYETS access in tunnel	15/12	24/3	12.4 weeks	More time under the false floors?
Magnet campaign	9/1	13/1	1 week	Magnets through BA6
Cabling campaign	23/1	24/3		
Cryoline installation	23/1	10/3	(4 weeks in tunnel, 7 weeks total)	Pressure test 15/3
Scaffold installation (crab zone)	5/1	6/1		If Cryotech is not ready, scaffold may be installed on the crab zone with some days delay to ease the other activities here.
Scaffold installation (tunnel) Reduction of transport lane to 1.4m	16/1 earliest	20/1	7 weeks of presence of scaffold	If Cryotech is not ready, scaffolding installation in the tunnel may be delayed by 1 week
Scaffold removal		3/3		3 weeks before EYETS ends, precaution for TPSG bakeout
TIDVG removal	End Feb		1 day	Scaffold in place
TIDVG reinstallation	13/3		1 day	“

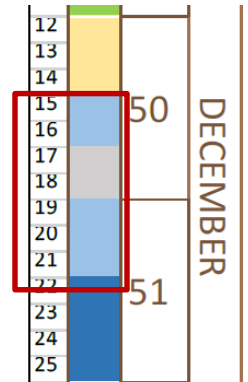
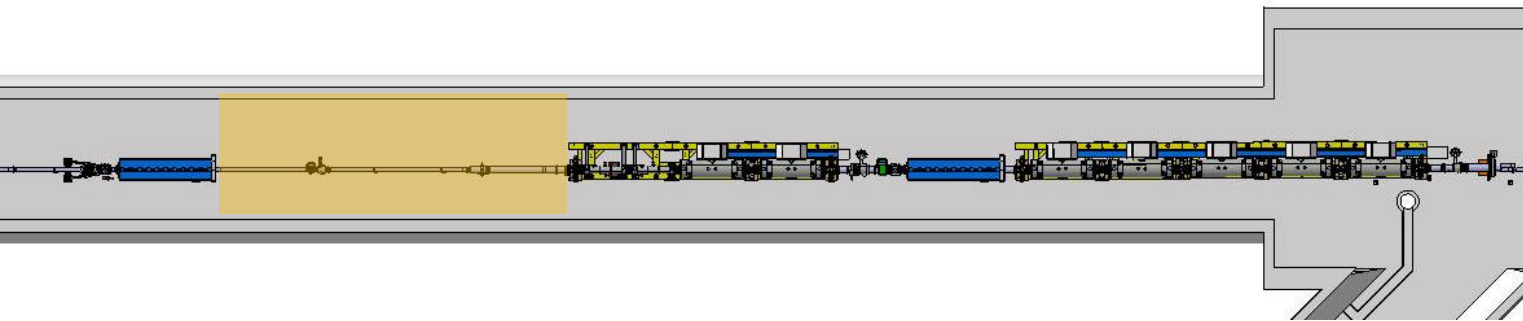


EN/EL EN/CV EN/HE EN/EA Survey EN/ACE BE/RF BE/ICS SMB/SE TE/ABT TE/VSC TE/CRG HSE/RP General



# TUNNEL, before Xmas

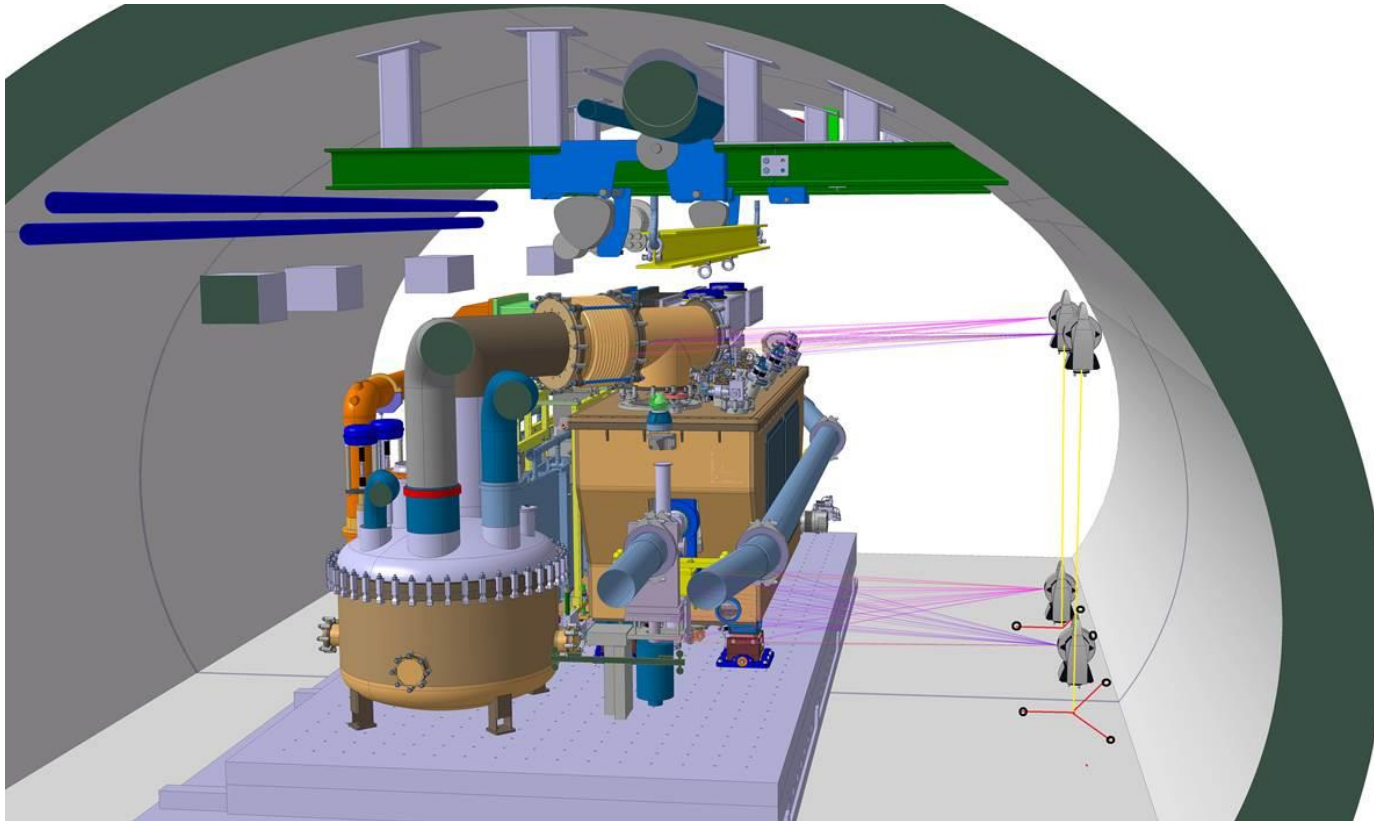
DATES



Team	Task	Days	Comments
VSC	<ul style="list-style-type: none"> <li>removal of vacuum pipe, installation of new valves.</li> <li>TPSG and following sectors under N2</li> <li>QDA and preceding, under vacuum</li> </ul>	3dd	No VIC Team of 3
EN/EL	Uncabling black cables, tunnel wall	2d	Team of 2
	Removal of cable tray and smaller connection boxes	2d	
SU	Marking position of the AT401 pillars Inspection, marking positions for wall fiducial holes at crab area	1d	Team of 2
	drilling holes and gluing fiducials	1d	
	measurement of metrology network at crab	1d	No coactivity 0.5d
	marking on the floor details of movable table supporting plates, holes for plates threaded rods, etc	1d	
SMB	DIMENSIONE: drilling the AT401 pillar holes and installing the anchors and covers. <b>VIC</b>	5d	17:00-20:00

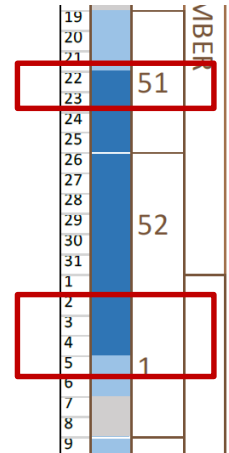
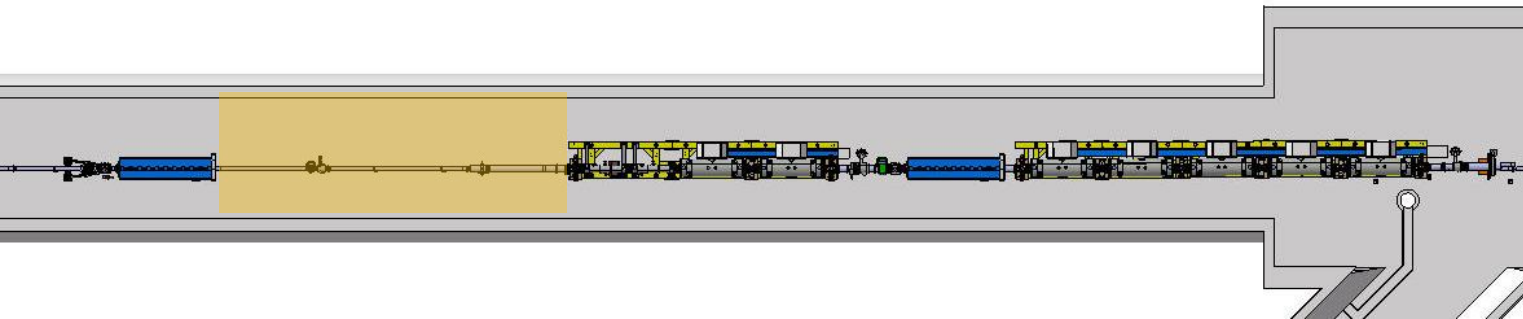
Marking position of the AT401 pillars

Inspection, marking positions for wall fiducial holes at crab area



# TUNNEL, during Xmas break

## DATES



Team	Task	Days	Comments
SMB	PREZIOSO LINJEBIGG, 22/12 and 23/12 and 2/1 - 5/1 6 persons max, accessing tunnel during Xmas break Preparation of the floor for the transfer table	5d	<b>VIC</b>

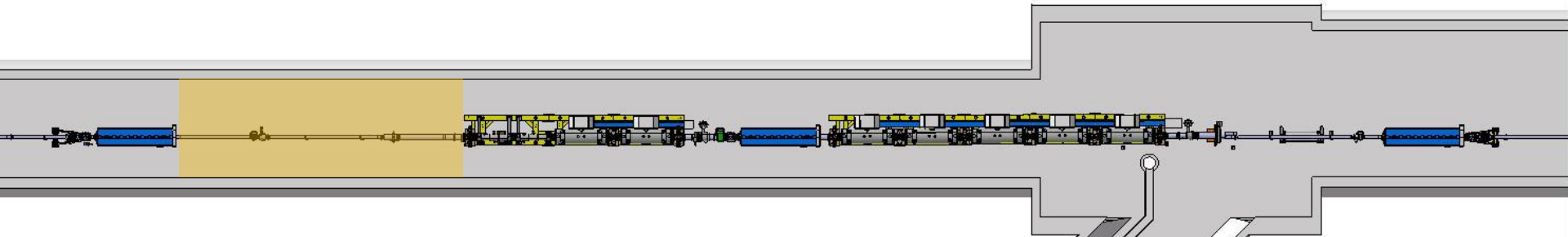
Reason for work during X-mas break: drying of the resin



# PREPARATION OF THE FLOOR

CERN supervision?

Activity by PREZIOSO LINJEBYGG for SMB/SE

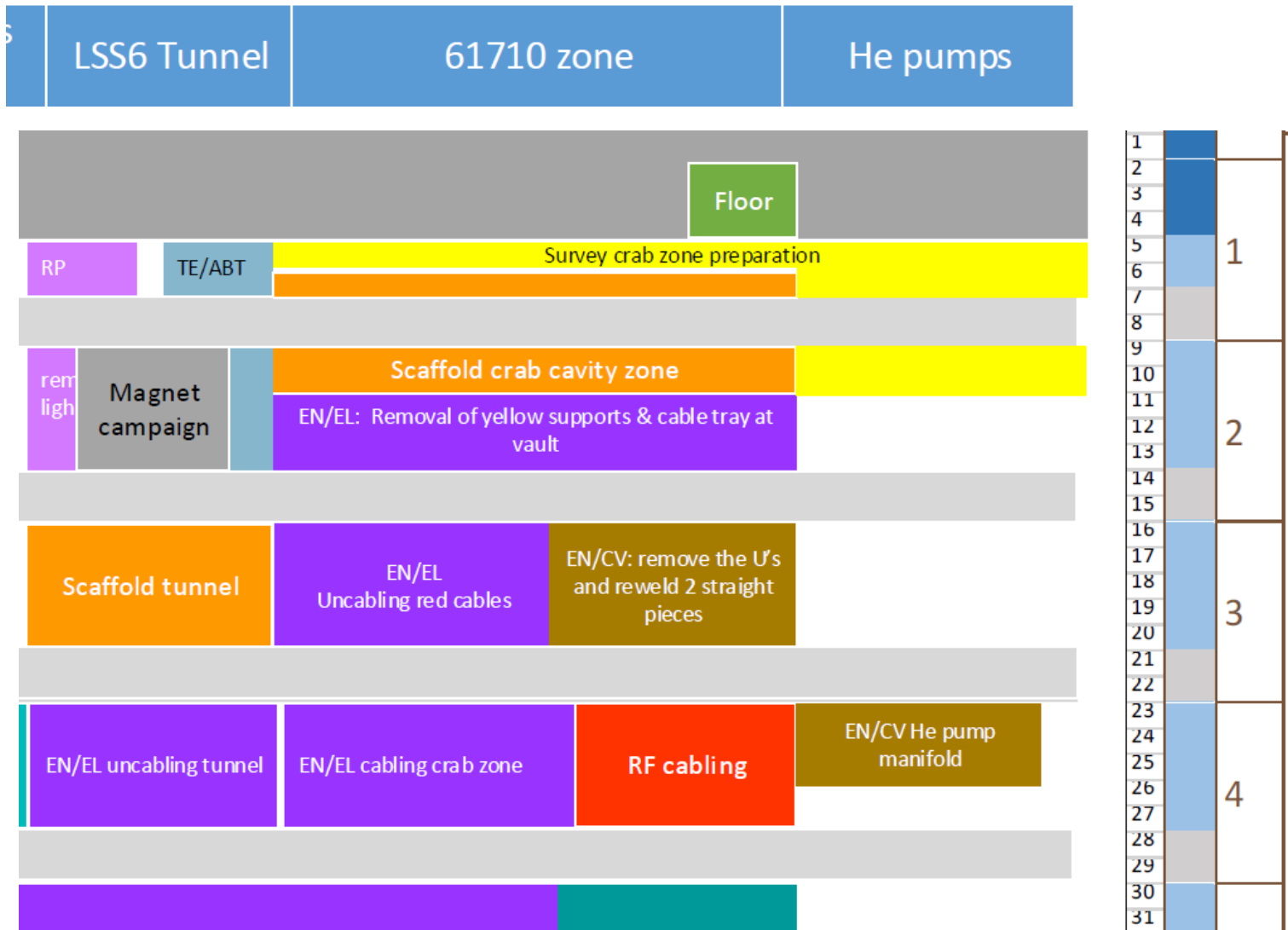


## DATES

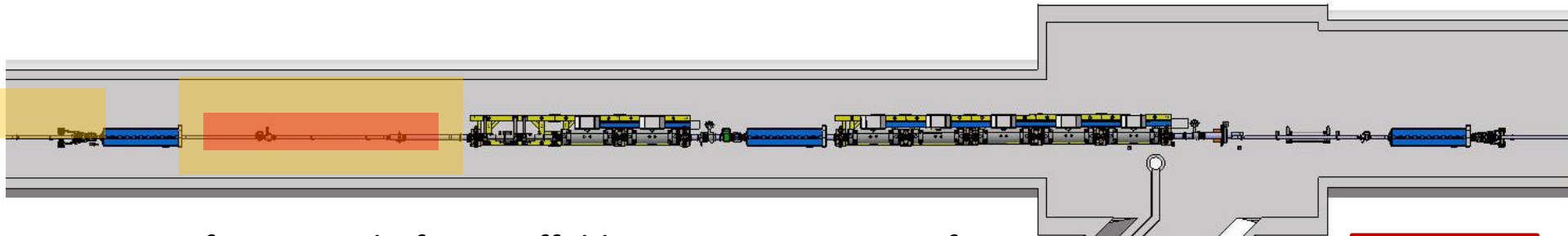
19		
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22	51	
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- Filling in the big cracks and holes (if any) with a suitable cement-based mortar. The micro-cracks cannot be filled in.
- Installation of a reinforcing mesh (40 cm X 40 cm) fixed to the existing concrete by using screws
- Application in the mesh of a Resin Sikafloor 156
- Application of a grout Sikafloor 156 to cover the heads of the screws.
- On the top of that, application of the thick resin usually used in tunnel (Primer Sikafloor 161 and two layers of Sikafloor 263)

The thickness of all the layers together is about 5 mm.



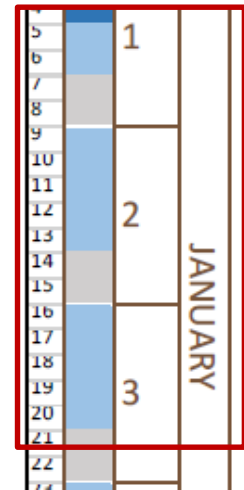
# TUNNEL, after Xmas break



Activity for Survey before scaffold is set up, to prepare for the installation of the cryoline (Cryotech) and the cabling campaign

- Day 1 ACE/SU mark dcum
- Day 2-3 Scaffold
- Day 4-5 EN/EL uncabbling
- Day 6-8 EN/CV works

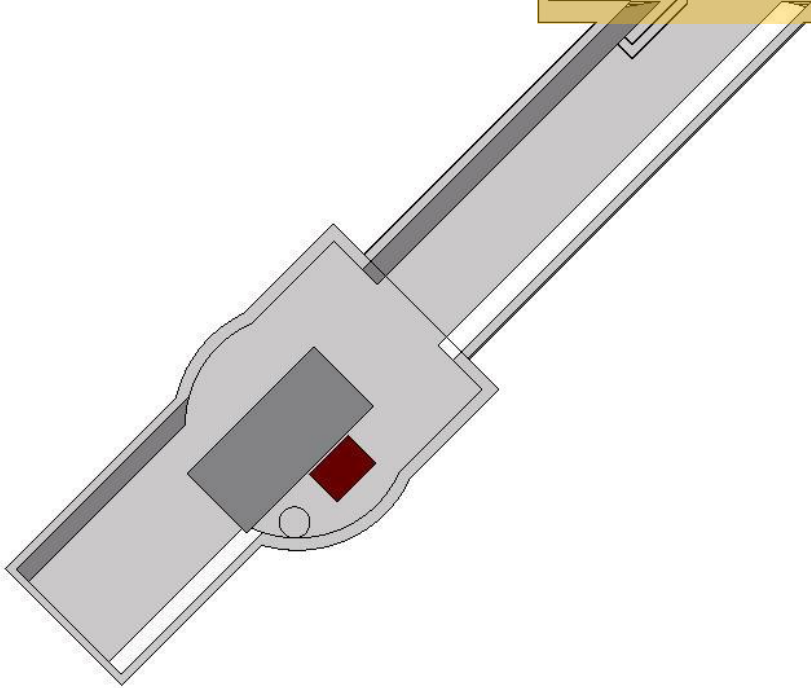
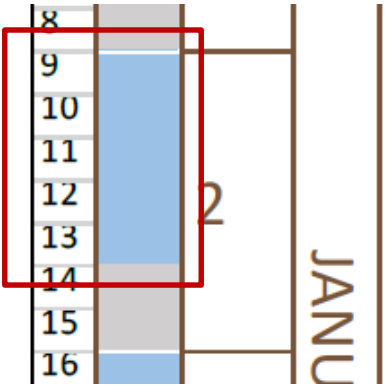
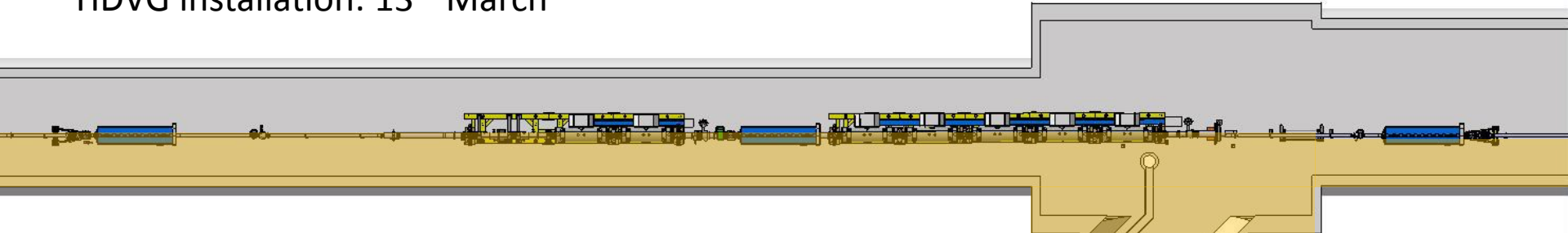
Flexibility of 1 day between scaffold installation and survey, right after Xmas



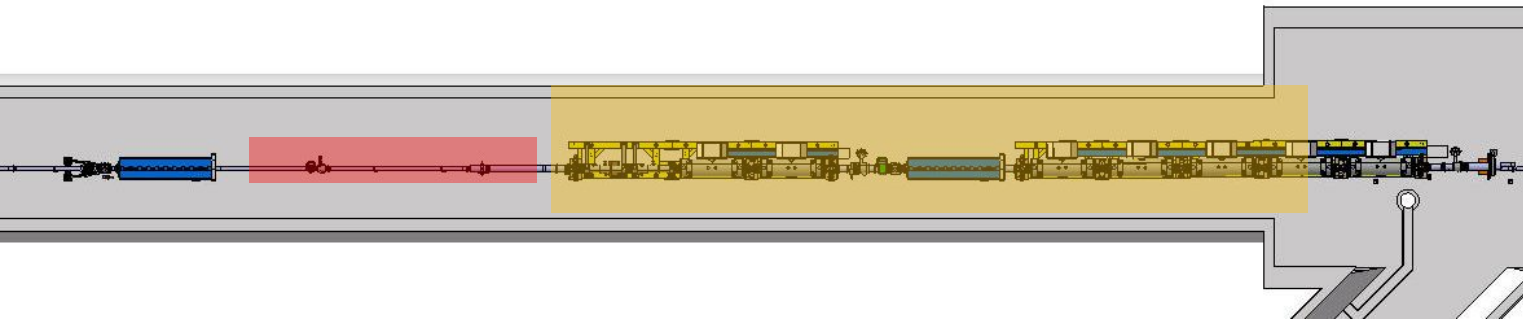
Team	Task	Days	Comments
ACE/SU	Mark dcum (1m) from QDA61710 to BL61771 for EN/EL campaign	1d	Volume of work?
EN/EA	Scaffold in the crab-cavity zone alone	2dd	<b>VIC</b>
EN/EL	Uncabbling red cables, removal of yellow supports & cable tray at vault and tunnel wall	3d	Need scaffold
EN/CV	remove the U's and reweld 2 straight pieces	3d	Need scaffold

# MAGNET CAMPAIGN

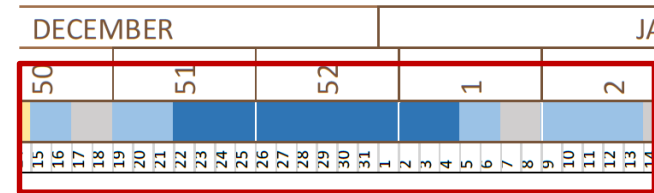
Magnets transit through BA6: from 9<sup>th</sup> Jan to 13<sup>th</sup> Jan  
TIDVG removal: end February  
TIDVG installation: 13<sup>th</sup> March



# TUNNEL, before scaffold installation



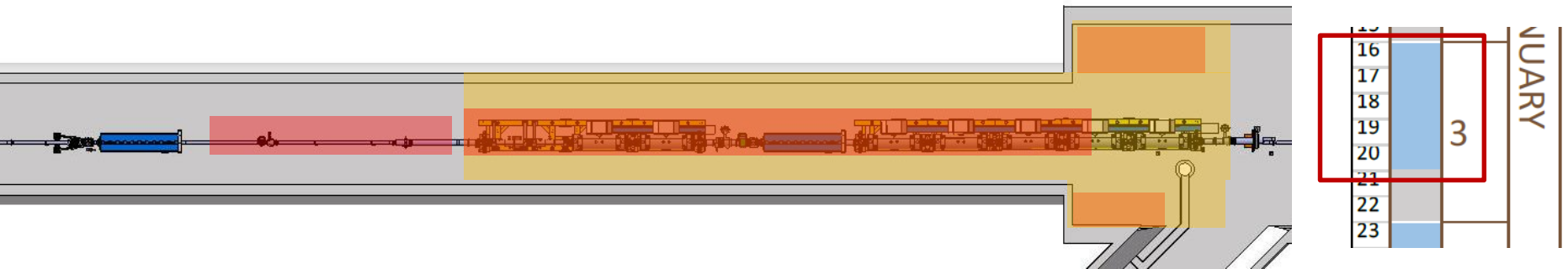
DATES



Team	Task	Days	Comments
RP	Removal of RP lights from the MST/MSE zone to free for scaffolding	0.5d	Before 16/1
TE/ABT	Preparation of the MST/MSE for scaffolding: removal of delicate equipment, cables etc.	2d	Before 16/1

Minor work, but must be finished before 16<sup>th</sup> Jan (scaffold installation)

# TUNNEL, scaffold



Team	Task	Days	Comments
EN/EA	Scaffold over LSS6, 40m	5d	<b>VIC</b>

See next slides for scaffold use regulations

# SCAFFOLD USE AND REGULATIONS

**IDENTIFICATION :**

**CONSTRUCTEUR :** **OUVAROFF**

Interdiction de modifier cet échafaudage

Plancher de tête	250	Kg/m <sup>2</sup>
Niveau N°	*	Kg/m <sup>2</sup>
Niveau N°		Kg/m <sup>2</sup>

VÉRIFICATION AVANT (RE)MISE EN SERVICE

Examen de montage et d'installation  
Echafaudage conforme techniquement

Date **Ouvaroff (C.Ruby)** Heure

Nom  Visa

Examen d'adéquation par le donneur d'ordre  
Echafaudage conforme à la demande

Service  Heure

Date

Nom **G.Vandoni** Visa

En cas d'écart et pour toute demande de modification, appeler :

ACCÈS RÉSERVÉ AUX PERSONNES AUTORISÉES

Examen d'adéquation par les entreprises utilisatrices.

Nom Société	Nom responsable	Visa
Cryotech		
TE/CRG		
EN/EL		
EN/CV		

Chaque charge de travaux assure avant intervention que l'échafaudage est conforme (points clés à vérifier au verso) et répond à ses besoins.

Société utilisatrice	Chargé de travaux	Date / Heure	Visa
Cryotech			
TE/CRG			
EN/EL			
EN/CV			

## GUIDE DES POINTS CLÉS À VÉRIFIER

LISTE INDICATIVE NON EXHAUSTIVE

ASPECT GÉNÉRAL

- Présence des garde-corps et moyens d'accès adaptés.
- Présence de tous les éléments de fixation ou de liaison des constituants entre eux.
- Pas de déformation permanente ou de corrosion.
- Présence des éléments de calage.
- Absence d'encombrement des planchers.
- Présence affichage.

LE PLANCHER DOIT ÊTRE :

- Continu (pas d'intervalle vide, jeu entre les constituants < 25 mm).
- Horizontal (pente inférieure à 15 %).
- Si nécessité de chevauchement, hors voie de circulation et support sur structure transversale.
- Plancher de largeur suffisante pour permettre des travaux en toute sécurité.

Aucun vide de plus de 20 cm entre le bord des planchers et l'équipement contre lequel l'échafaudage est établi.

ACCÈS

L'échafaudage doit être équipé d'un dispositif d'accès aux différents niveaux :

- Plancher à trappe avec échelle et lisse supplémentaire à 1,50 m du plancher côté vide.
- Escalier.

S'assurer que la trappe d'accès est refermée.

GARDE CORPS  
(zones de circulation et de travail)

Hauteur comprise entre 1 m et 1,10 m comportant :

- une plinthe de 10 à 15 cm de hauteur,
- une main courante,
- une lisse intermédiaire à mi-hauteur.

CALAGE

2 exemples de calage en bois :

PROTECTIONS INDIVIDUELLES

Gants, casque, chaussures de sécurité.

Si pas de garde corps alors harnais + ligne de vie + ancrage sûr.

AFFICHAGE

Charge admissible visiblement indiquée sur l'échafaudage et chacun des paliers.

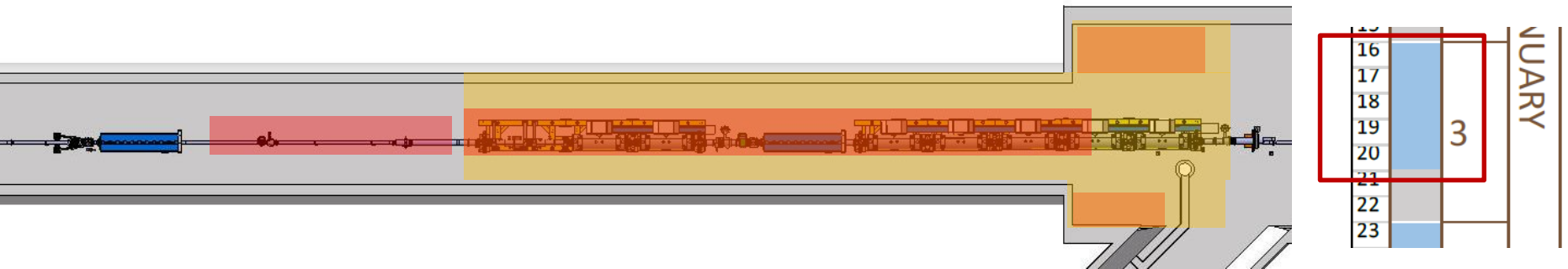
Une pancarte visible de tous, mentionnant :

- Entreprise ayant construit l'échafaudage.
- Dates de réception ou MES de l'échafaudage.
- Réception de moins de 3 mois.
- Utilisation de l'échafaudage depuis moins d'un mois.

En cas d'écart identifié,  
prévenir le donneur d'ordre au numéro de téléphone indiqué au recto pour remise en état.

If during the activity it becomes necessary to modify the scaffold, (e.g. dimount partially a barrier), the modification is done by Ouvaroff. One week notice is sufficient.

# TUNNEL, with scaffold

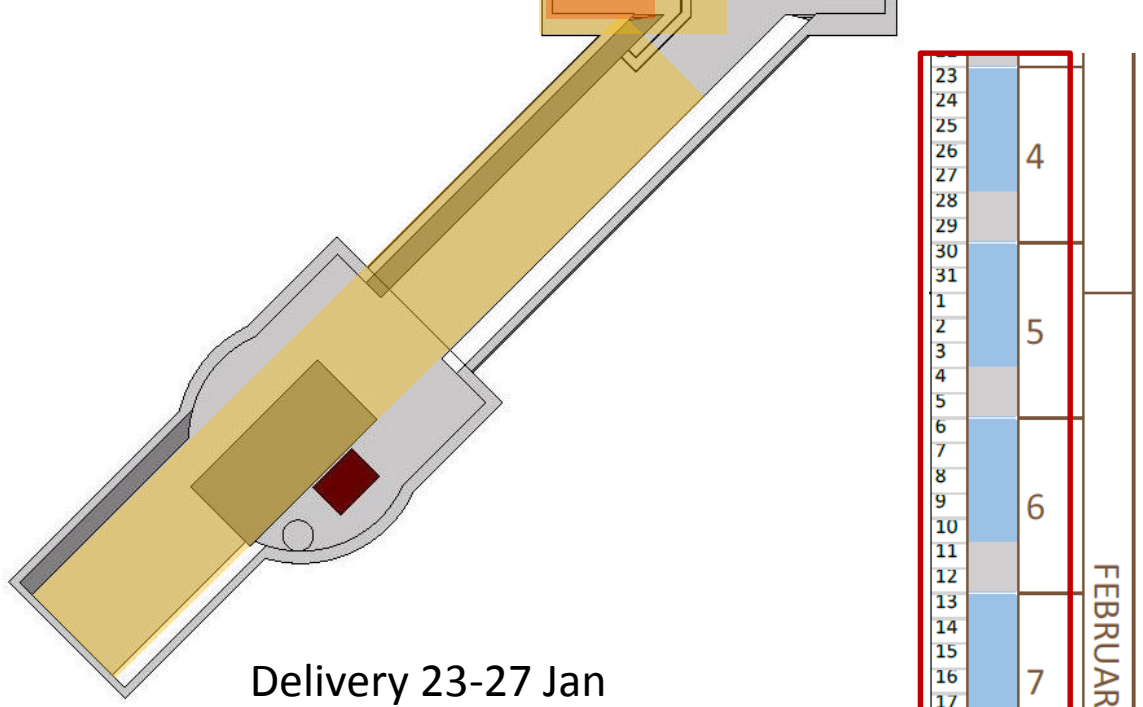
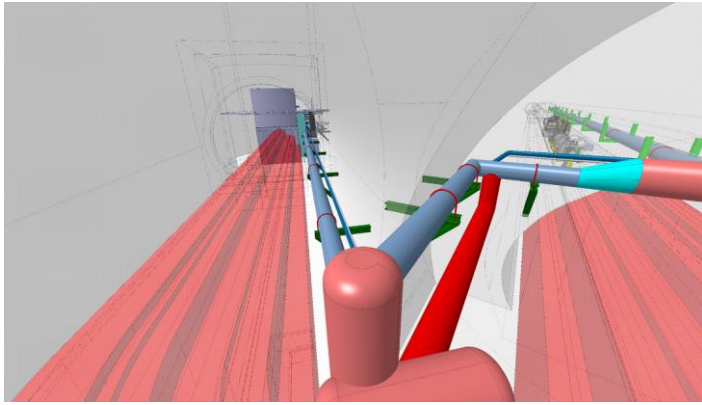
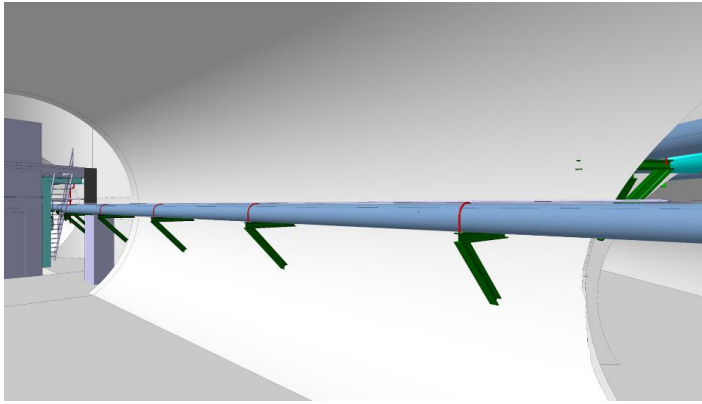
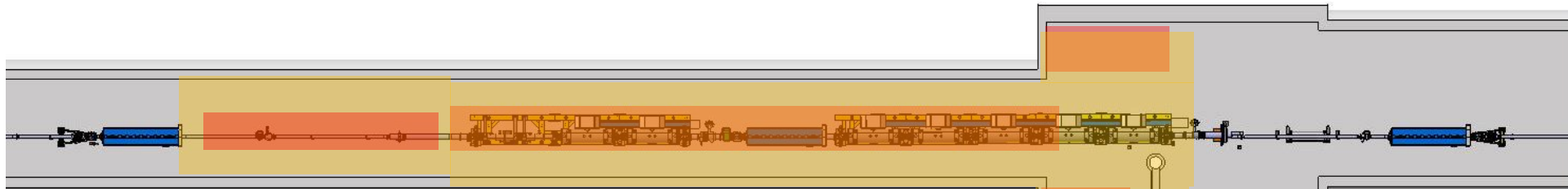


Team	Task	Days	Comments
EN/EL	Uncabbling		<b>VIC</b>
	Removal of cable tray and yellow supports at the vault	5d	
BE/RF	Coaxial cables installation		





# CRYOGENIC DISTRIBUTION LINE



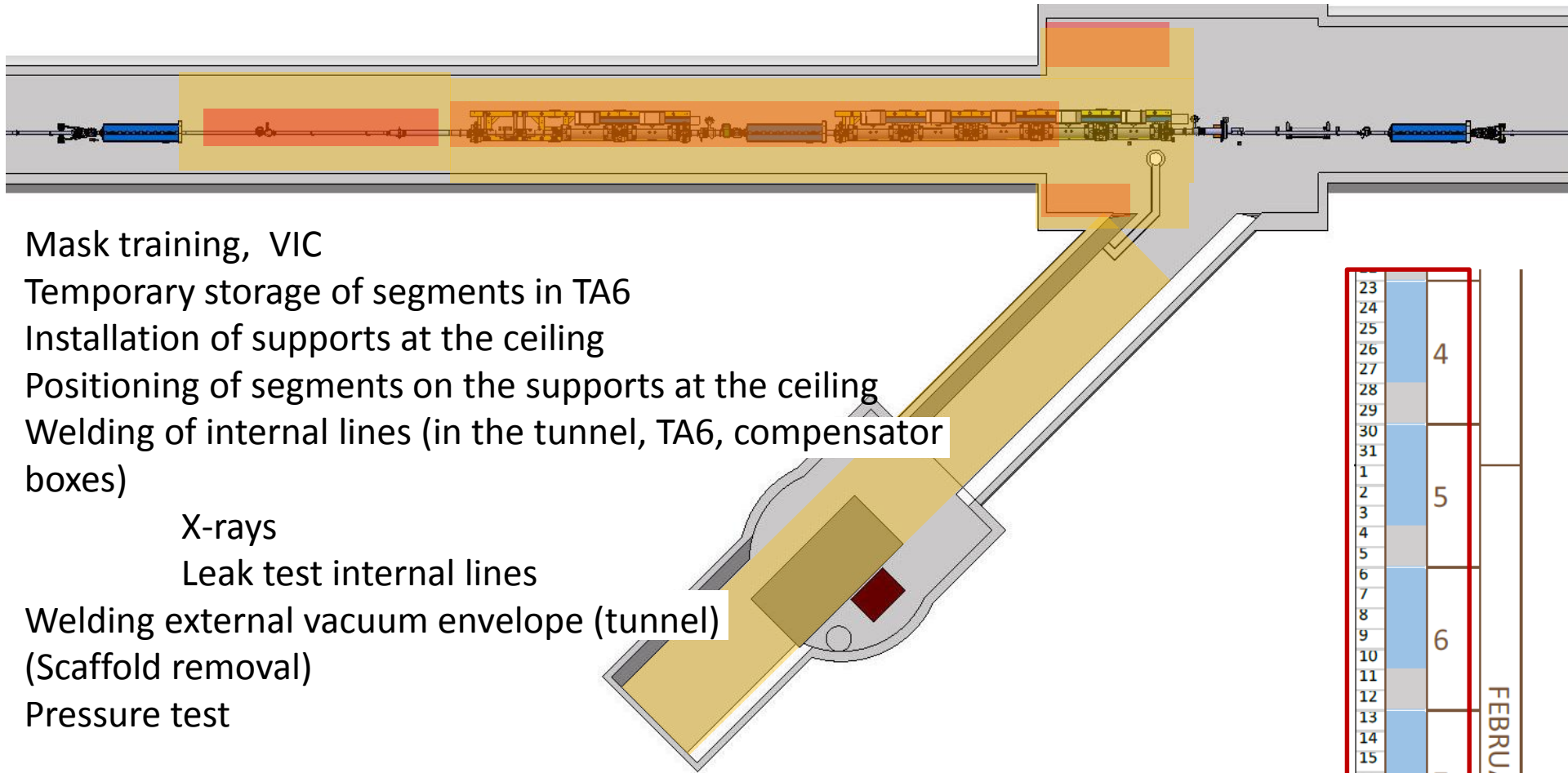
Delivery 23-27 Jan  
 Installation 30/1 to 10/3  
 Pressure test 15/3 latest

DATES

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FEBRUARY

# CRYOGENIC DISTRIBUTION LINE



- Mask training, VIC
- Temporary storage of segments in TA6
- Installation of supports at the ceiling
- Positioning of segments on the supports at the ceiling
- Welding of internal lines (in the tunnel, TA6, compensator boxes)
- X-rays
- Leak test internal lines
- Welding external vacuum envelope (tunnel)
- (Scaffold removal)
- Pressure test

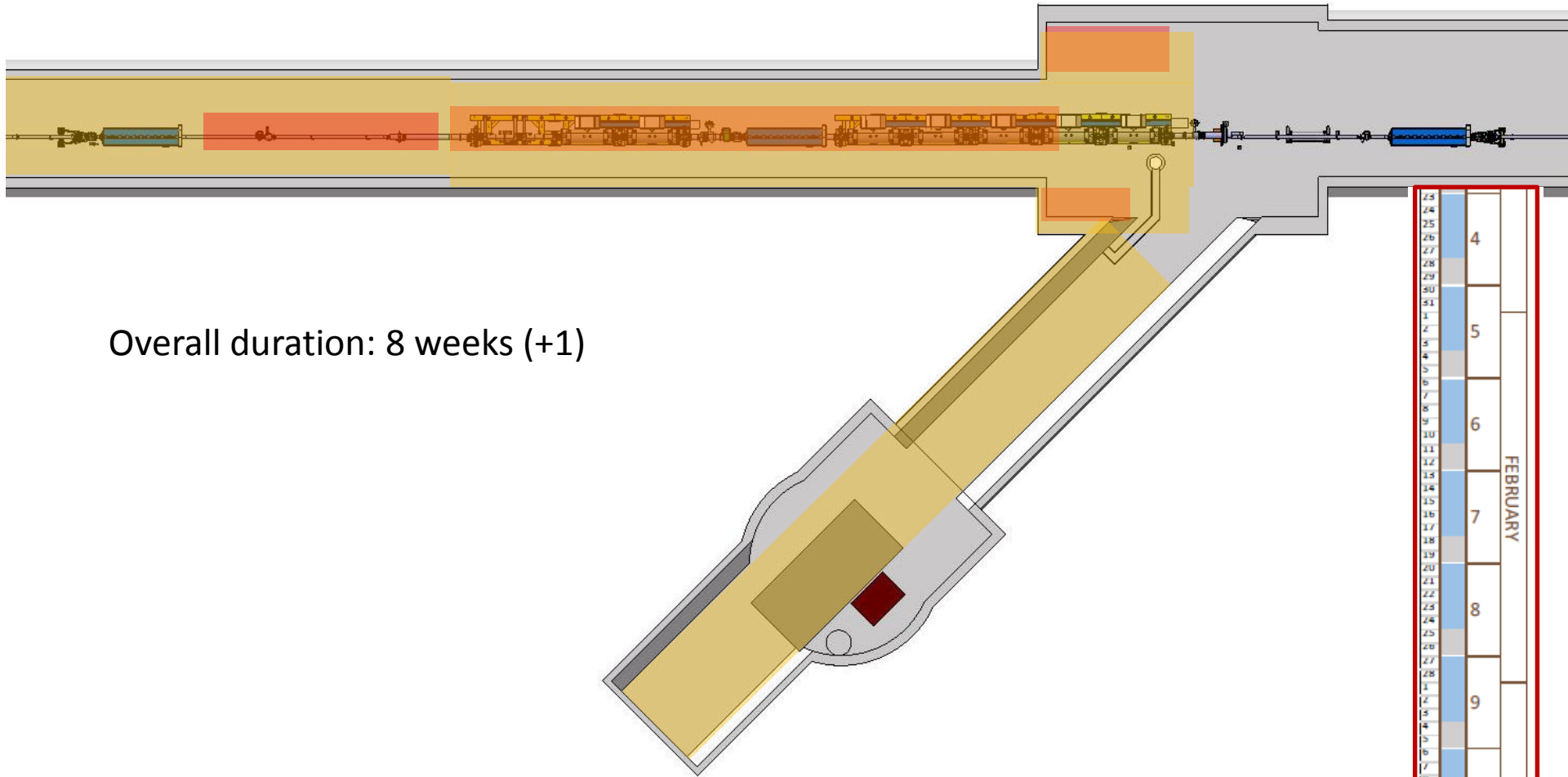
Scaffold can be removed after the tunnel segments are welded, while still working on the TA6 part and compensator boxes

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FEBRUARY

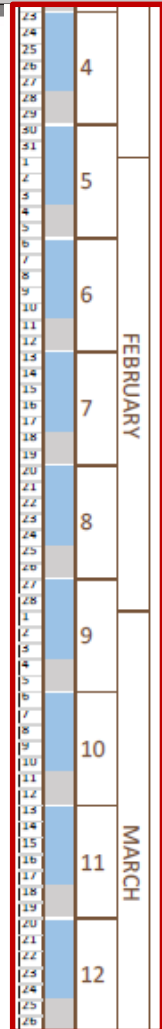
DATES

# EN/EL CABLING CAMPAIGN

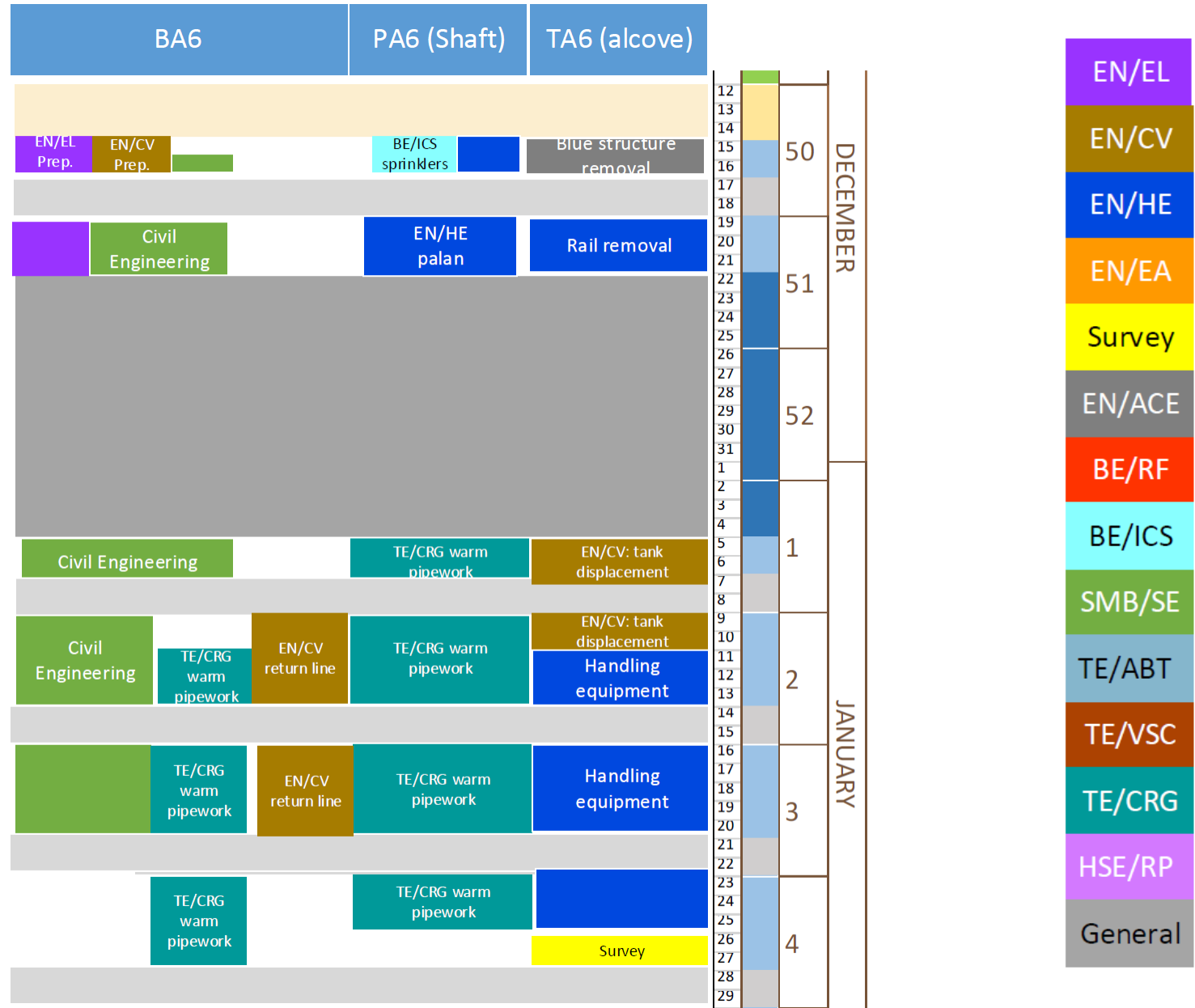


Overall duration: 8 weeks (+1)

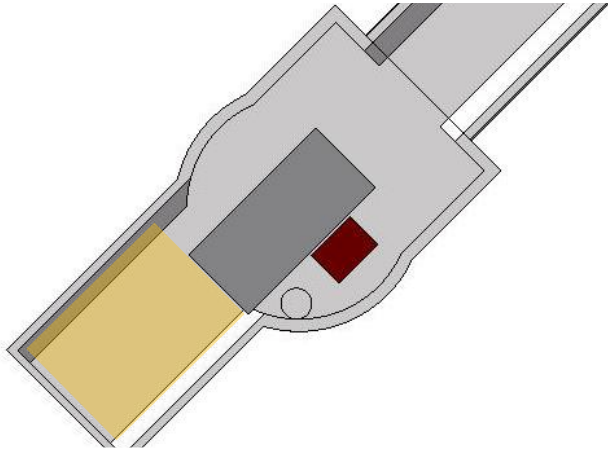
Work in the technical gallery  
BE/RF coaxial cables are pulled in parallel



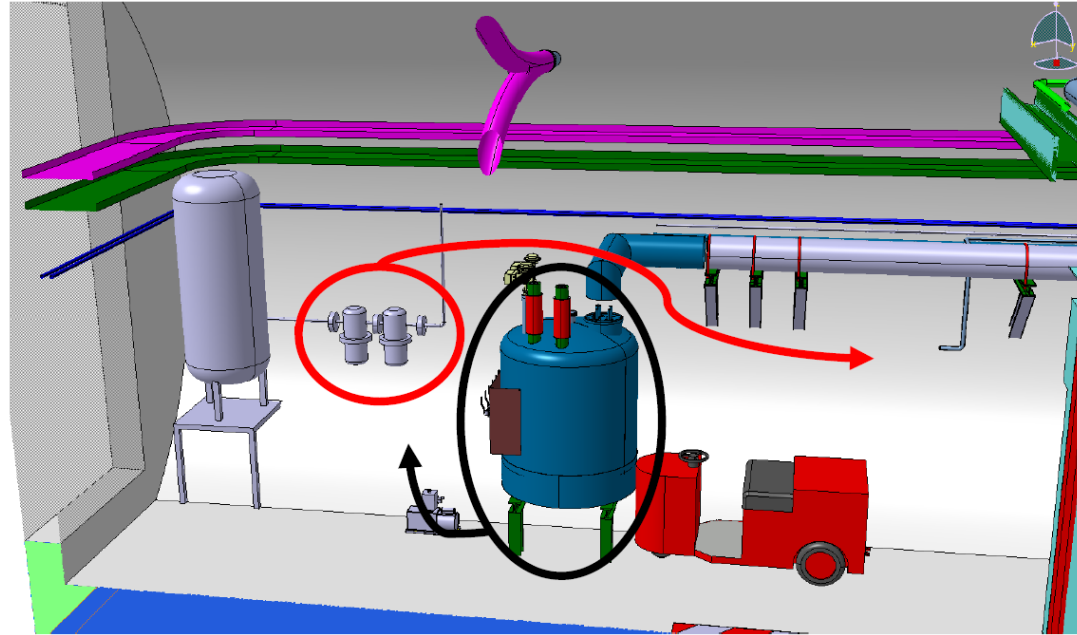
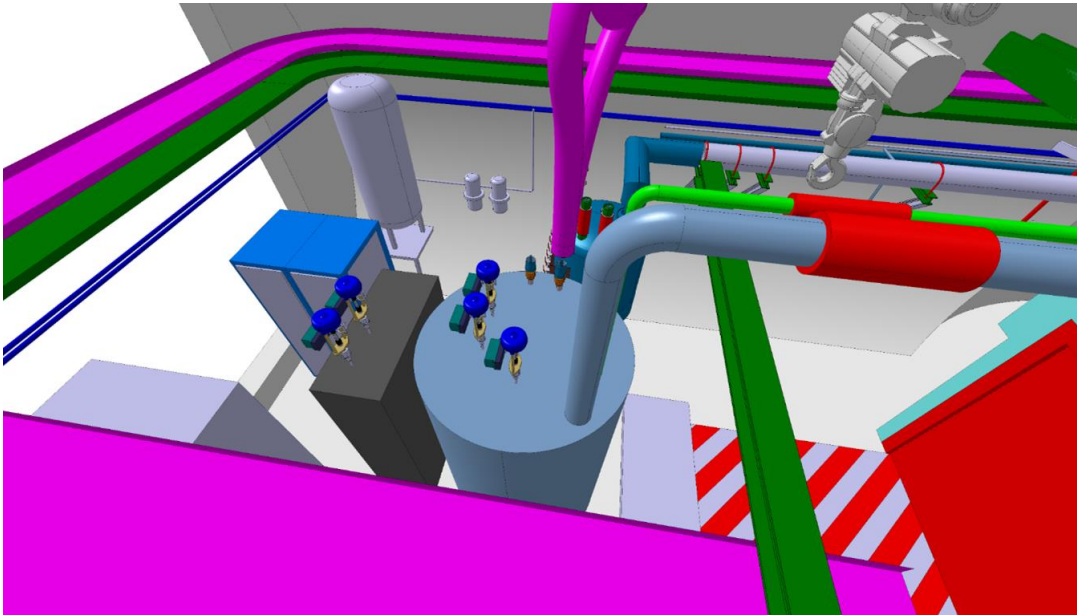
# TA6 alcove, PA6 shaft, BA6 – before cabling



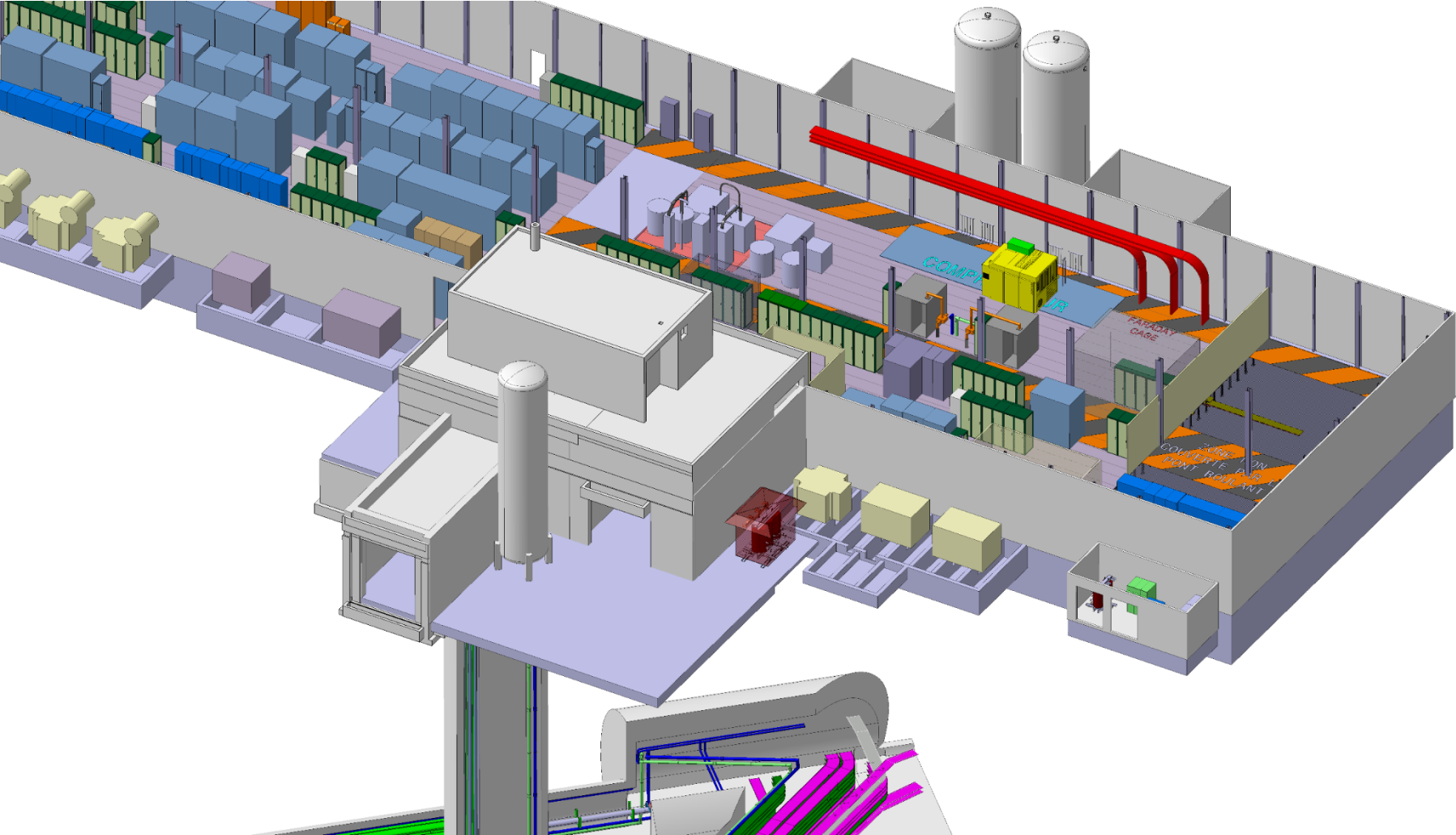
# TA6 ALCOVE, EYETS activities



Team	Task	Days	Comments
EN/ACE	Removal of blue structure	2dd	M.Arnaud
EN/HE	Removal of 0.5 ton handling rail	3dd	G.Roche
EN/CV	Displacement of compressed air tank	3dd	P.Pepinster
EN/HE	New handling equipment	2wk	C.Bertone
	Load test of new rail	25/1	L.Colly
ACE/SU	Mark positions for EN/EL campaign	2d	
EN/EL	Installation of new cable trays	8wks	
	Cabling campaign		
TE/CRG	Cryogenic distribution line installation, welding	6 wks	
	Pressure test	15/3	



# BA6 and shaft

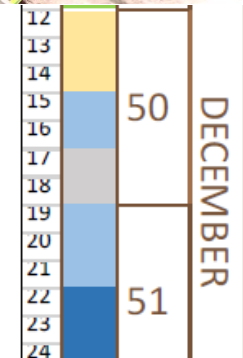
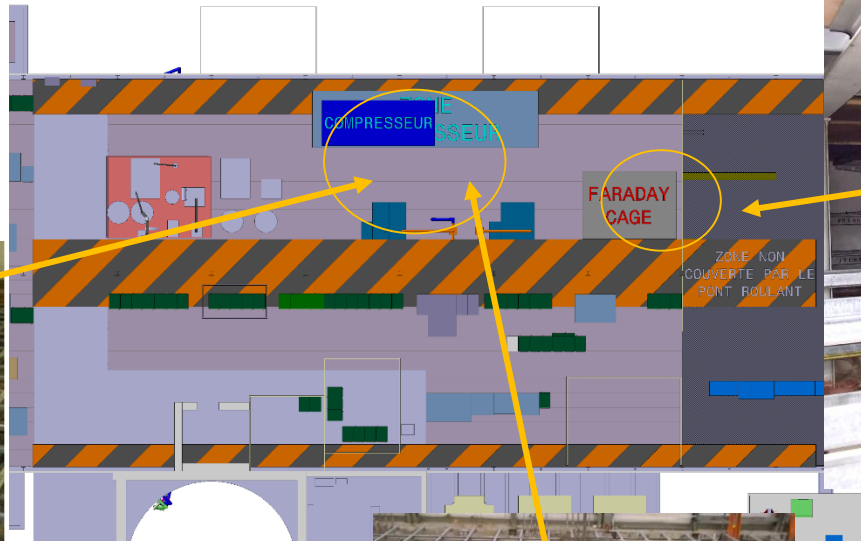


S.Mehanneche  
20161115



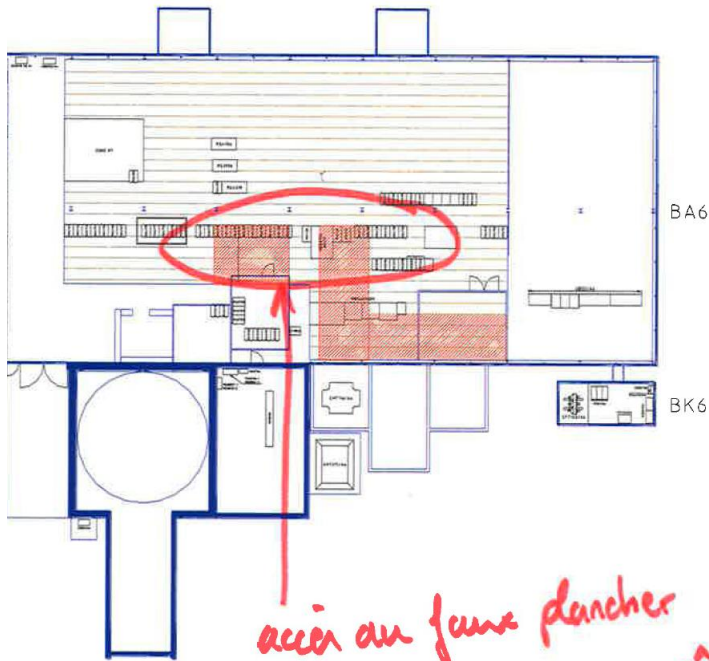
# BA6, PREPARATORY WORK

clarinettes



Team	Task	Days	Comments
EN/EL	Removal of cable coil at Faraday cage position	2dd	Owner??
	Removal of unused cable trays	2dd	
EN/CV	Removal of unused “clarinettes”	2dd	
SMB/SE	Consolidation of BA6 false floor supporting structure	1d	16 december

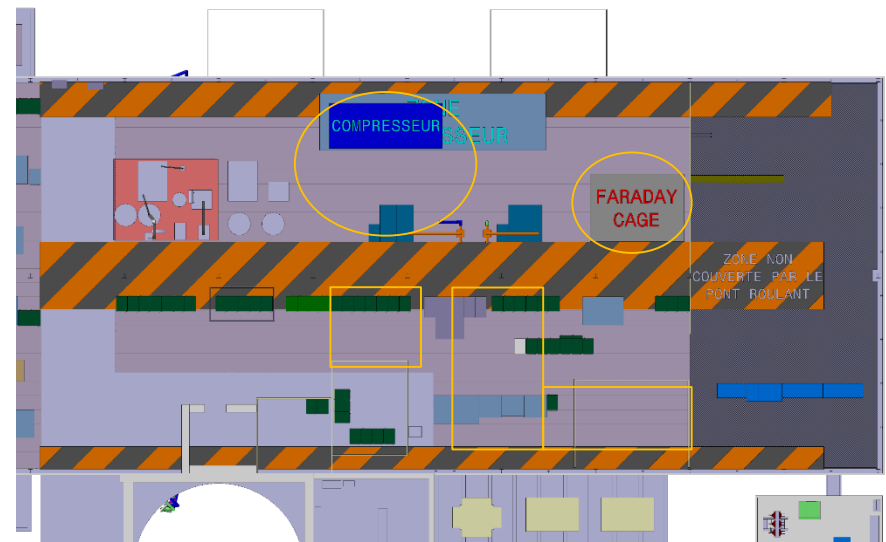
# BA6 CIVIL ENGINEERING



*accès au faux plancher  
nécessaire pour tirage câbles.*

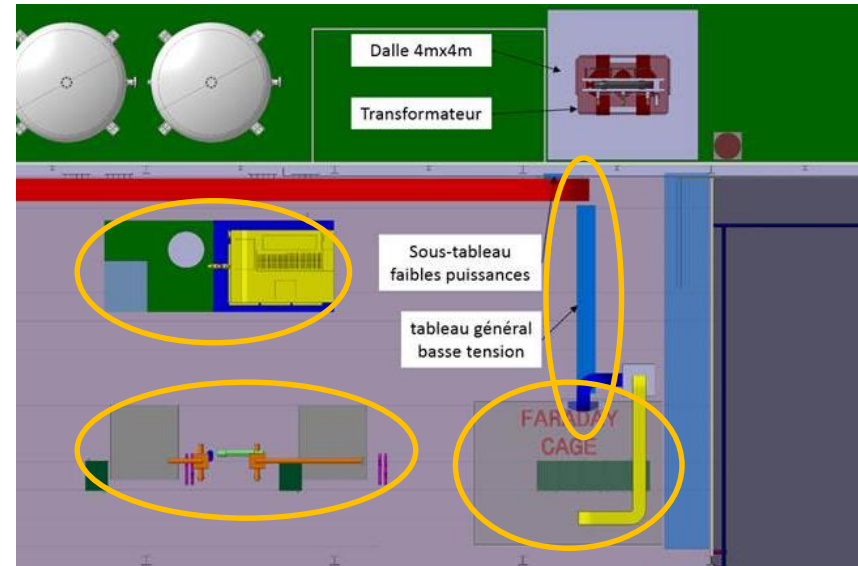
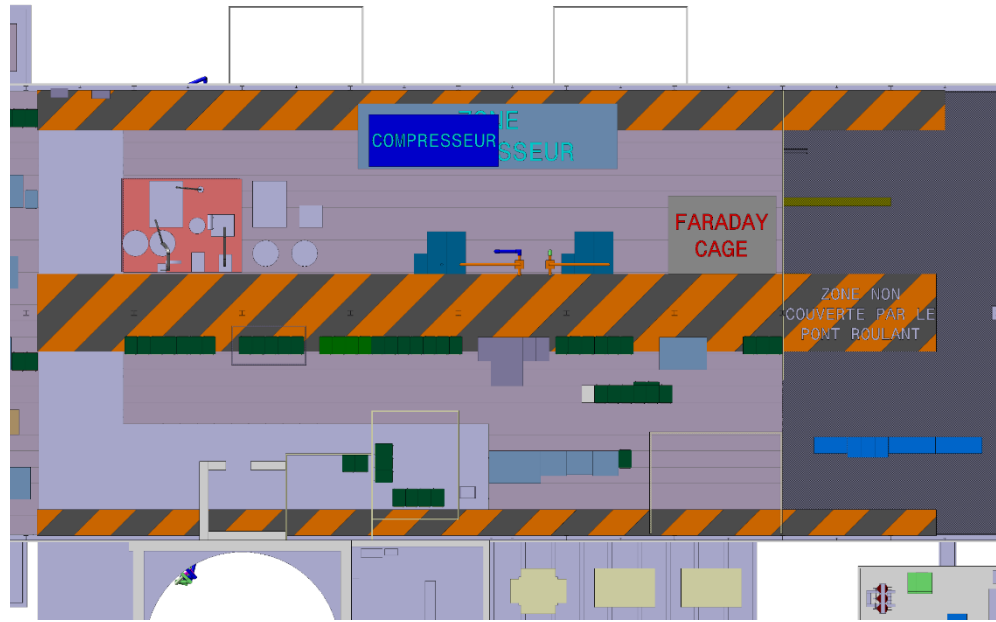
Information from HSE

Intervention to consolidate the false floor structure before work underneath is possible  
16<sup>th</sup> december



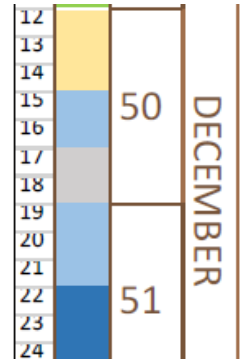
Team	Task	Days	Comments
SMB/SE	Consolidation of BA6 false floor supporting structure	1d	16/12/2016

# BA6 CIVIL ENGINEERING

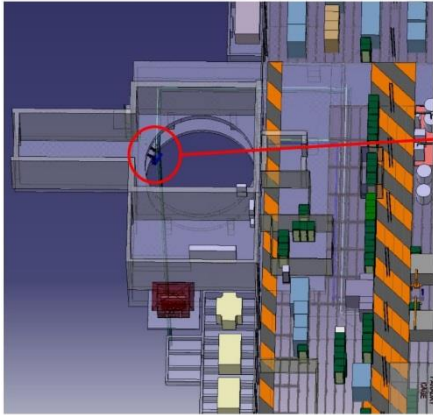


Team	Task	Days	Comments
SMB/SE	Installation of supporting structures for IOTs		3 weeks
	Faraday cage		
	TGBT Tableau General Basse Tension		
	Cryo compressor		Position and supports not yet defined

# PA6 SHAFT, PREPARATORY WORK



BA6



Conflit des lignes cryogéniques avec les tuyaux incendie

EN/HE

Old “palan” removal

New “palan” connection and load test

Team	Task	Days	Comments
BE/ICS?	Removal of sprinklers in PA6 shaft	2dd	
EN/HE	Removal of old “palan”	5dd	Large slot, to be arranged with BE/ICS
	Connection of new “palan”		
	Load test (Laurent Colly)	0.5d	20/12

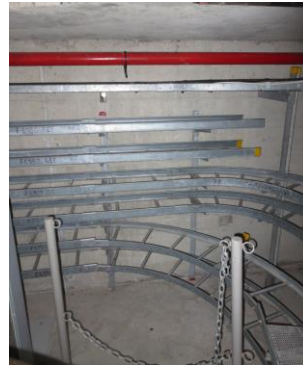
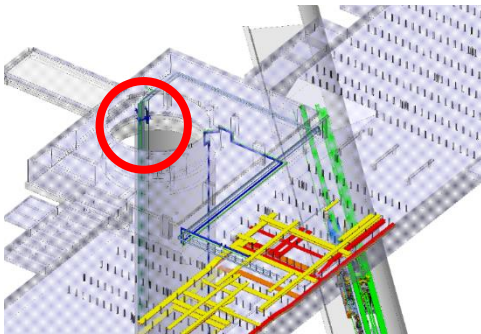
Removal of the sprinklers? Same team as cryo warm pipework (P.Cruz)?

# Zone PA6

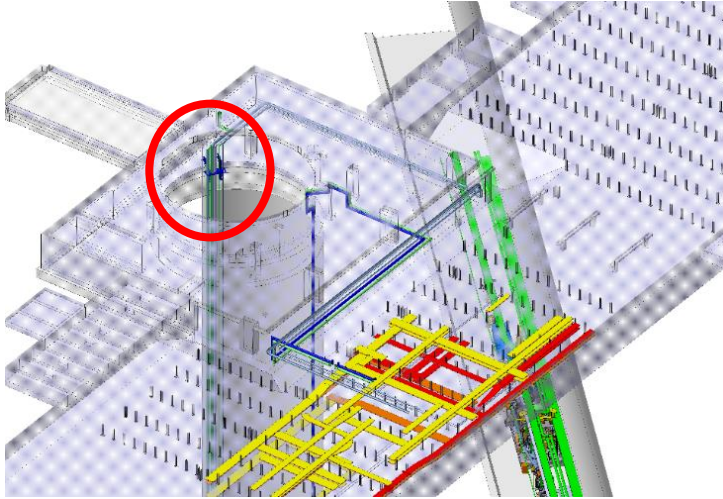
Integration conflict : warm cryo pipework

/ sprinklers

/ cable tray



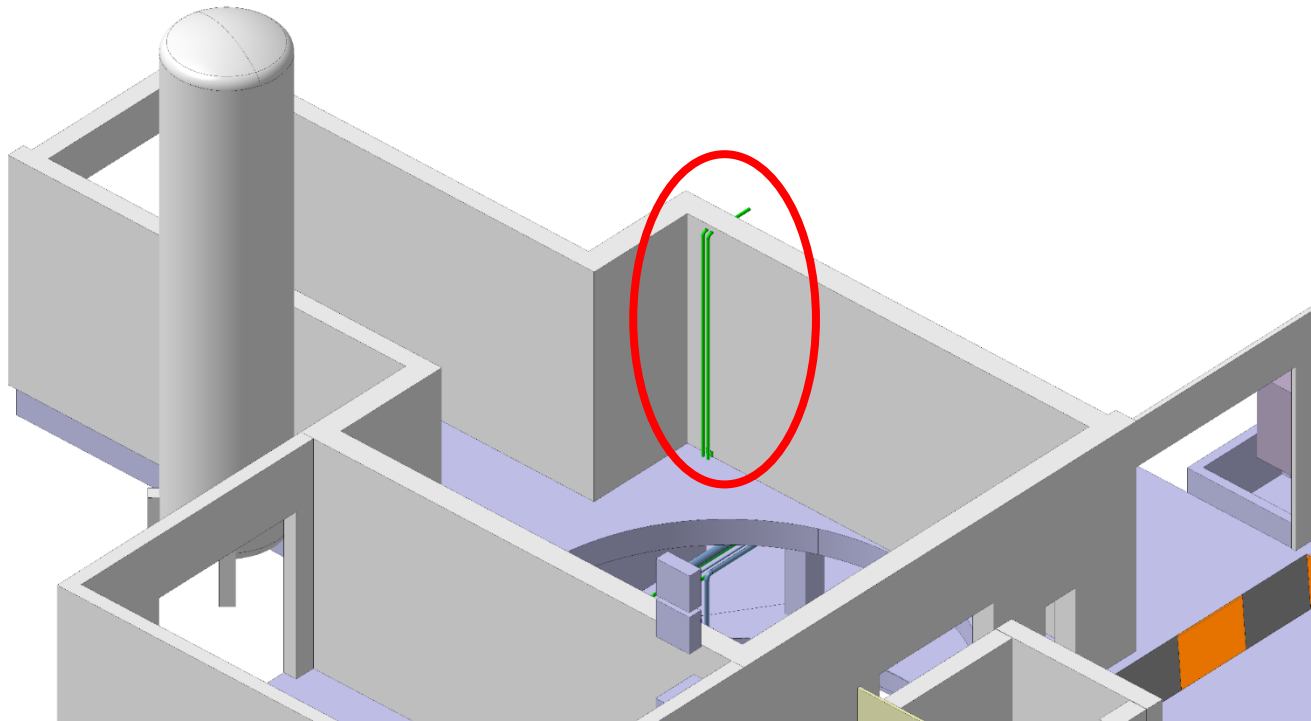
# PA6 SHAFT, INTEGRATION CONFLICT



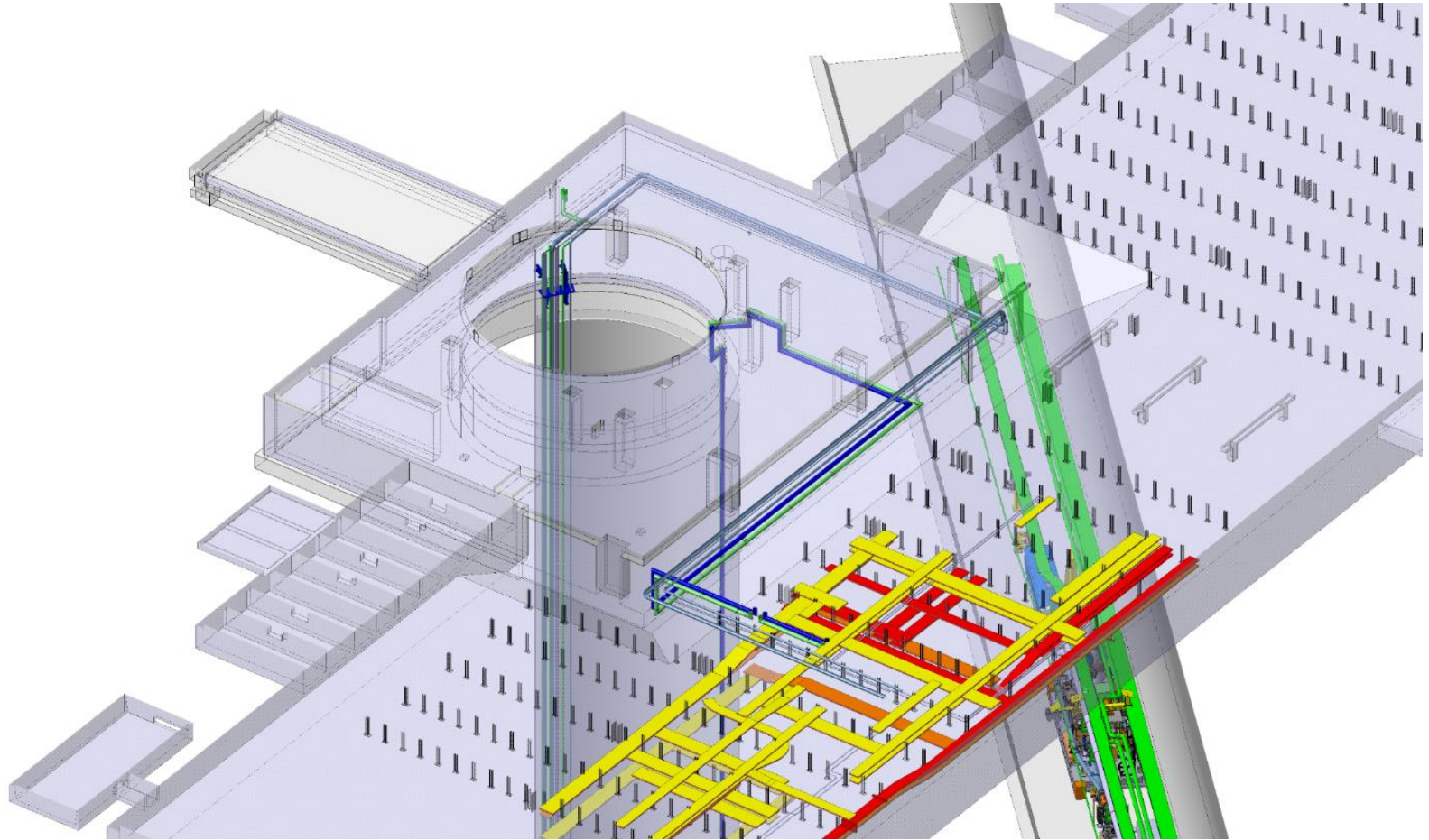
To be solved out of this meeting but urgently!

# PA6 SHAFT, «carottage» for cryogenic vent

Has this been asked to SMB?  
Is it acceptable for RP and EN/CV?  
...to go in the ECR

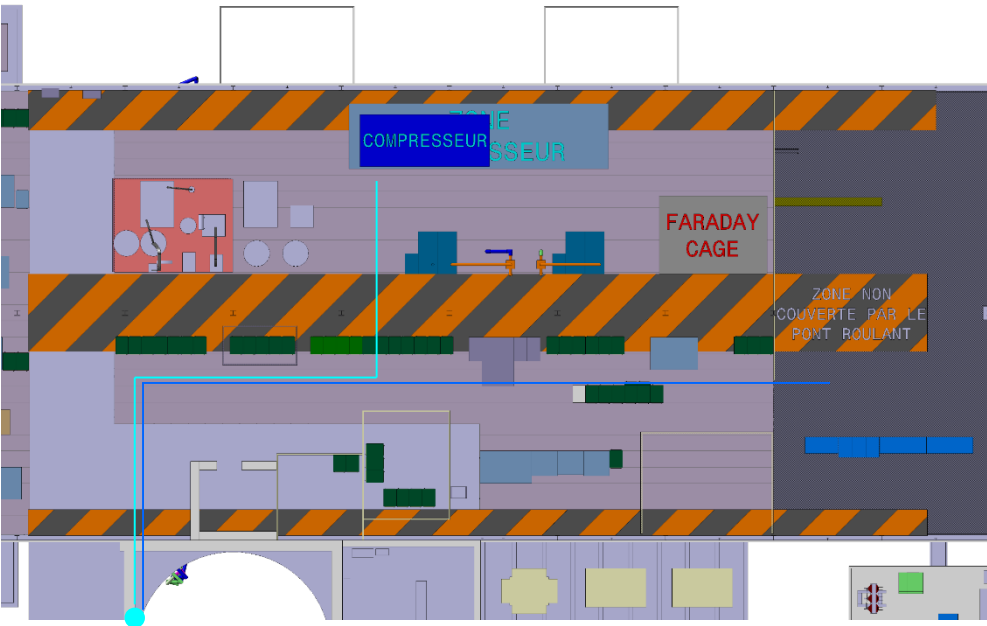


# BA6 CRYOGENIC (and CV) WARM PIPEWORK





# BA6 CRYOGENIC (and CV) WARM PIPEWORK

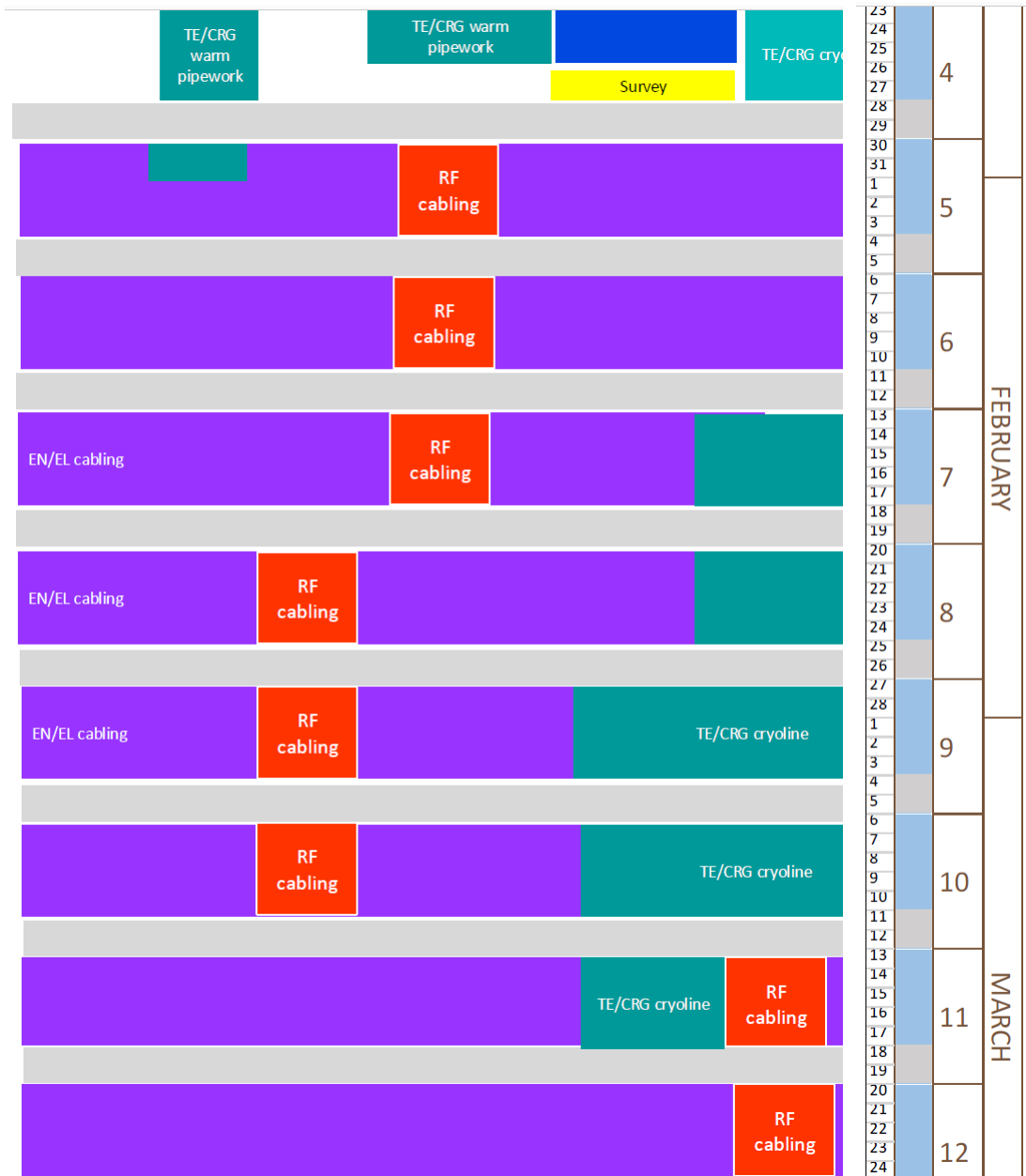


SHAFT	Shaft exit	BA6 compressor zone	To EN/CV zone
1 week			
1 week	1 week		
1 week	1 week	1 week	1 week
		1 week	1 week

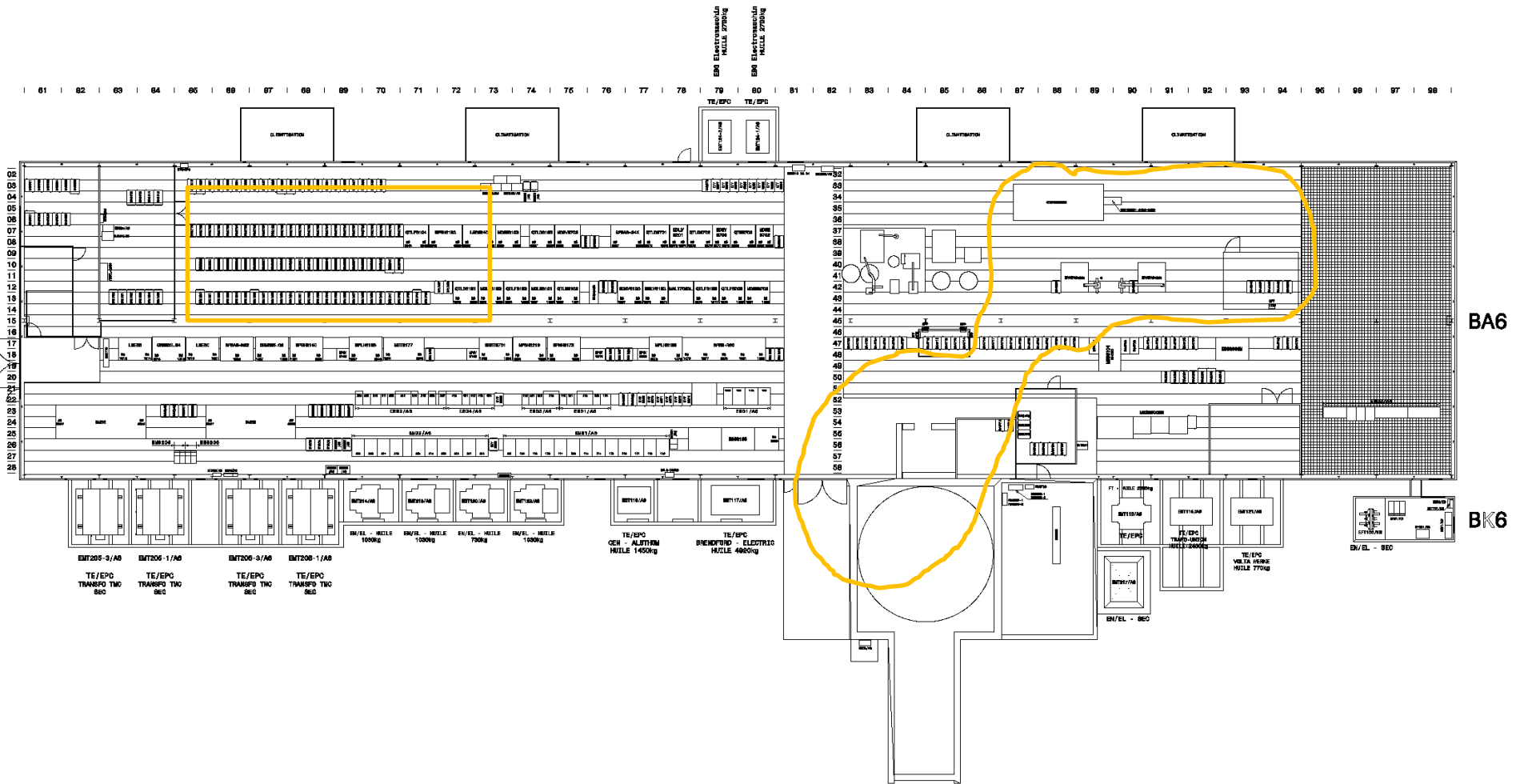
Team	Task	Days	Comments
TE/CRG	Pipework in the shaft, welds, handling	3wks	
	Pipework at the exit of the shaft, welds	1wk	
	Pipework to the compressor zone, welds	2wks	
EN/CV	Pipework (DN80) from the exit of the shaft to the EN/CV zone	2wks	

Is there a possibility to mutualize the common zone (same supplier?)

BA6	PA6 (Shaft)	TA6 (alcove)	TA6 (access tunnel)
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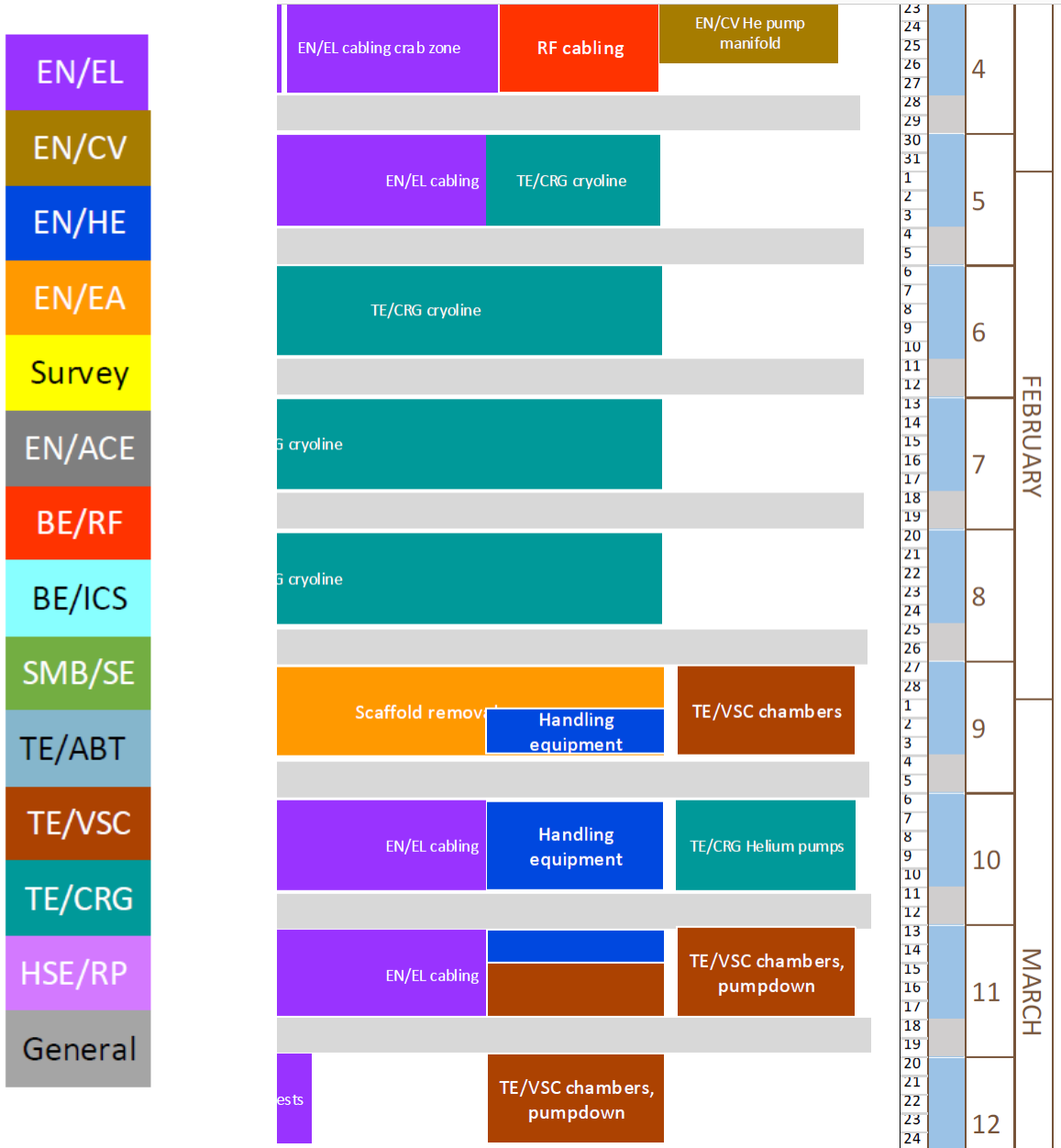
# BA6 - EN/EL CABLING CAMPAIGN



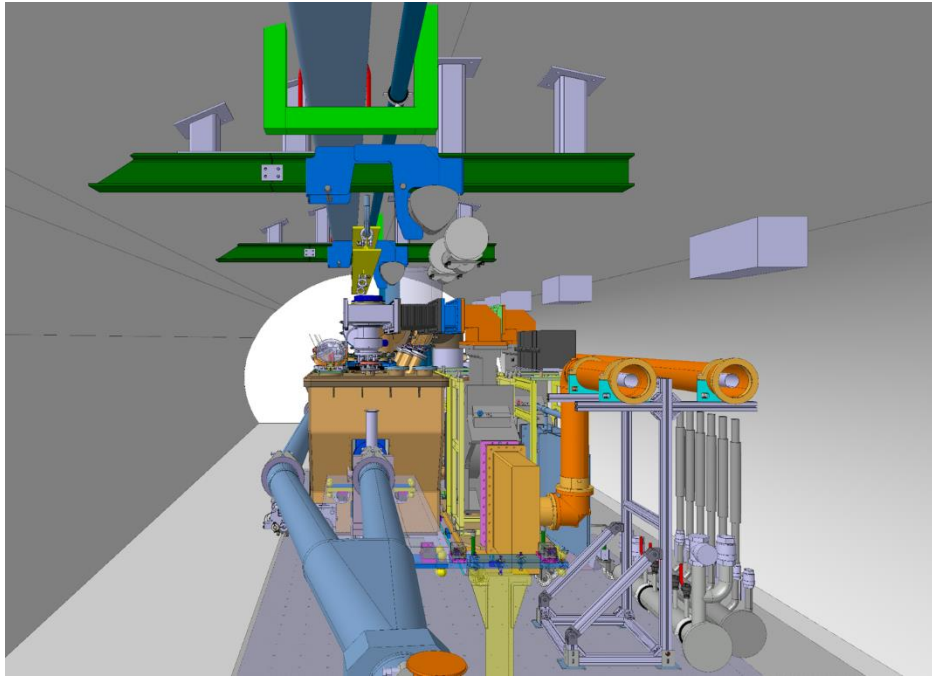
BA6

BK6

# TUNNEL, end of EYETS

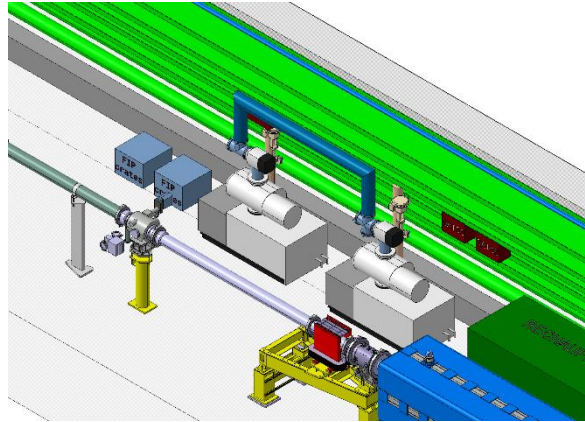


# TUNNEL, end of EYETS



Team	Action	Days	Comment
EN/EA	Scaffold removal, first on crab zone	5d	
(EN/CV	Piquages for He pumps	2d	Only constraint: before He pump installation
TE/VSC	Check of vacuum in MST/MSE		
EN/HE	Installation of new handling rail on top of the crab cavity zone, with load test	2wks	Nothing underneath <b>VIC</b>
TE/VSC	Closure of vacuum on crab zone, pumpdown, leak check		

# Helium PUMPS ZONE



Team	Action	Duration	Comment
ACE/SU	Removal of yellow pillar	1d	
	Mark dcum at the floor	1d	
EN/CV	Piquages for He pumps	2d	
TE/VSC	Removal of vacuum chambers upstream of QDA	5dd	
TE/CRG	Positioning of He pumps	5dd	
TE/VSC	Closure of vacuum chambers upstream of QDA	5dd	