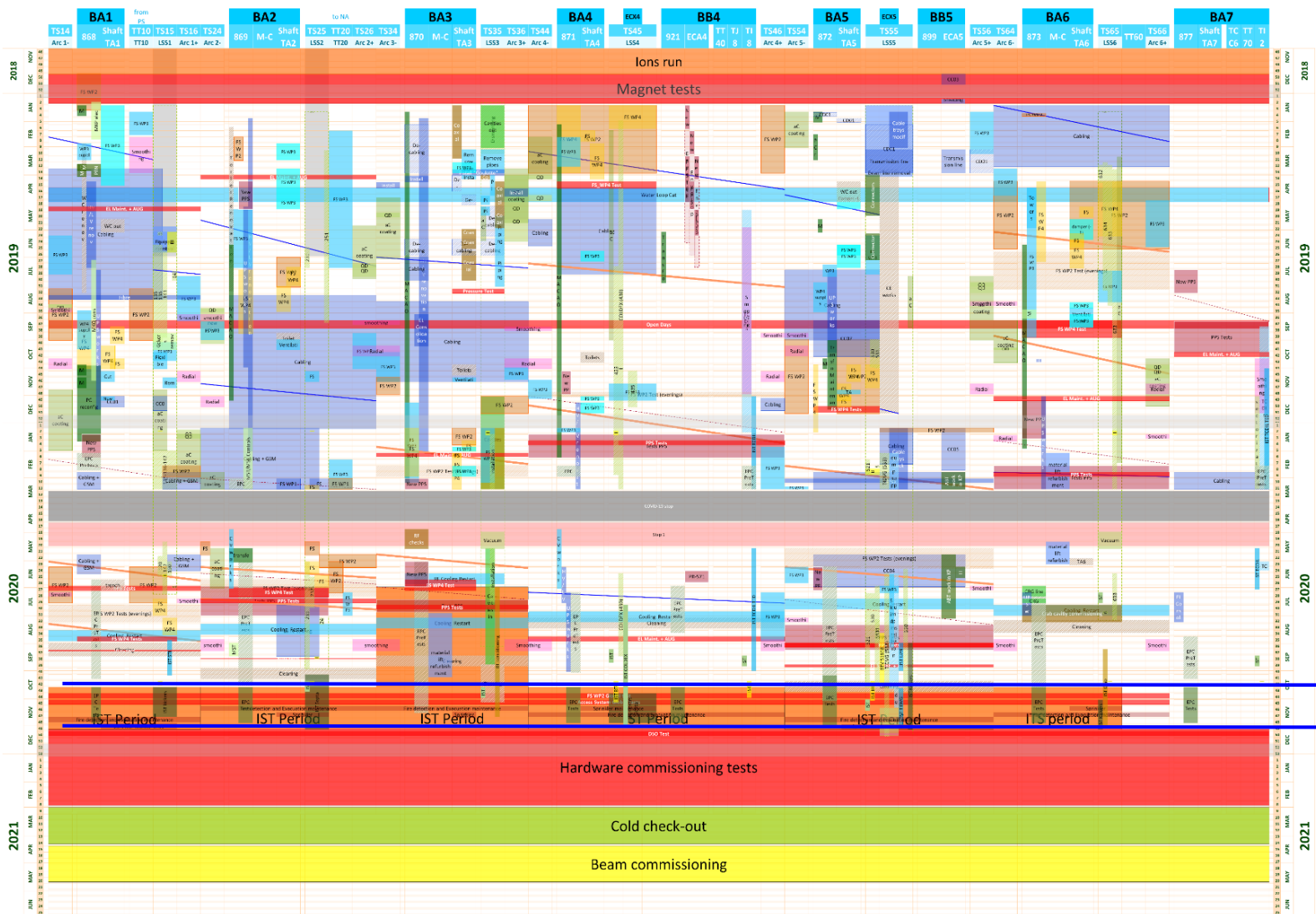


# SPS-crab cavity test stand recommissioning

G.Vandoni

- SPS main dates
- Planning test stand closure
- Cooldown & RF conditioning
- Summary

# SPS main dates



19 Oct (week 43)

26-30 Oct: SPS closed (Fire)

2-6 Nov: SPS closed (PPS)

IST

4 Dec (week 49)

SF1 cooling tower maintenance, primary water, week 49

# Planning SPS crab closure

Task Name	Duration	Start	Finish	Predecessors	Resource Names	Ac
▾ SPS crab cavity test stand closure	58 days	Wed 17/06/20	Fri 04/09/20			
▾ Cryogenics works	24 days	Mon 22/06/20	Thu 23/07/20			
▸ Tunnel cryogenics	23 days	Mon 22/06/20	Wed 22/07/20			
▸ Table test with flexibles	2 days	Tue 21/07/20	Wed 22/07/20			
▸ BA6 cryogenics	14 days	Mon 06/07/20	Thu 23/07/20			
▾ Cryomodule works	35 days	Wed 17/06/20	Tue 04/08/20			
Insulation vacuum test	3 days	Thu 23/07/20	Mon 27/07/20	11,10,15	AL4030-BE/RF	
Installation of tuner	1 wk	Tue 28/07/20	Mon 03/08/20	11,21	Kurt Artoos,Giov	
reconnection of RF instrumentation & checks	7 days	Wed 17/06/20	Fri 26/06/20		ABoucherie	
reconnection of cryogenic instrumentation	3 days	Tue 28/07/20	Thu 30/07/20	21,23	Nikolaos team	
reconnection of FSI	2 days	Wed 17/06/20	Thu 18/06/20		EN/SMM/HPA	
Overall electrical checks	3 days	Fri 31/07/20	Tue 04/08/20	24	BE/RF/PM	
▸ Vacuum works	18 days	Wed 05/08/20	Fri 28/08/20			
▾ Table test with all connections	1 day	Mon 31/08/20	Mon 31/08/20			
Table movement 5 cycles	1 day	Mon 31/08/20	Mon 31/08/20	32,33,15,25	EN/MME/EDM,E	
▾ Survey cavity position measurement	5 days	Fri 28/08/20	Fri 04/09/20			
reconnection of optical fibers	0.5 days	Tue 01/09/20	Tue 01/09/20	3,20,27,34	EN/SMM/HPA	
measurement of cavity position, transport lane blocked 1 day	1 day	Tue 01/09/20	Wed 02/09/20	37	EN/SMM/HPA	
▾ RF system recommissioning	5 days	Mon 31/08/20	Fri 04/09/20			
RF amplifiers restart	2 days	Mon 31/08/20	Tue 01/09/20	32,33	BE/RF/PM	
Check of functionalities	3 days	Wed 02/09/20	Fri 04/09/20	40	BE/RF/PM	
Test stand ready for commissioning	0 days	Fri 28/08/20	Fri 28/08/20	10,19,32,33	TE/CRG/ML	
▾ External SPS constraints	30 days	Mon 26/10/20	Fri 04/12/20			
Fire system check - no access	5 days	Mon 26/10/20	Fri 30/10/20		SPS constraints	
PPS Global Test	5 days	Mon 02/11/20	Fri 06/11/20		SPS constraints	
SPS closed	0 days	Fri 04/12/20	Fri 04/12/20		SPS constraints	
Access system operational	0 days	Mon 09/11/20	Mon 09/11/20	45	SPS constraints	
primary water plant maintenance	1 wk	Mon 30/11/20	Fri 04/12/20		SPS constraints	
▾ Cooldown & RF Conditioning	100 days?	Mon 31/08/20	Fri 15/01/21			

## Actors in the loop:

BE/RF/PM	G.Cipolla E.Montesinos (C.Julie)
BE/RF/CS	D.Glenat
LLRF	P.Baudrenghien
TE/VSC	C.Pasquino
TE/CRG	J.Metselaar J.Casas Benoit L.Alaux S.Claudet
Survey	V.Rude
AL4030	F.Monnet
Table	K.Artoos
Tuners	K.Artoos

# Planning SPS crab closure

Task Name	Duration	Start	Finish	Predecessors	Resource Names	Ac
▾ SPS crab cavity test stand closure	58 days	Wed 17/06/20	Fri 04/09/20			
▾ Cryogenics works	24 days	Mon 22/06/20	Thu 23/07/20			
▸ Tunnel cryogenics	DONE 90%	23 days	Mon 22/06/20	Wed 22/07/20		
▸ Table test with flexibles	DONE	2 days	Tue 21/07/20	Wed 22/07/20		
▸ BA6 cryogenics	DONE 90%	14 days	Mon 06/07/20	Thu 23/07/20		
▾ Cryomodule works	35 days	Wed 17/06/20	Tue 04/08/20			
✓ Insulation vacuum test	3 days	Thu 23/07/20	Mon 27/07/20	11,10,15	AL4030-BE/RF	
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reconnection of FSI	2 days	Wed 17/06/20	Thu 18/06/20		EN/SMM/HPA	
Overall electrical checks	3 days	Fri 31/07/20	Tue 04/08/20	24	BE/RF/PM	
▸ Vacuum works	DONE, leak checked, under vacua	8 days	Wed 05/08/20	Fri 28/08/20		
▾ Table test with all connections	1 day	Mon 31/08/20	Mon 31/08/20			
Table movement 5 cycles	1 day	Mon 31/08/20	Mon 31/08/20	32,33,15,25	EN/MME/EDM,E	
▾ Survey cavity position measurement	5 days	Fri 28/08/20	Fri 04/09/20			
reconnection of optical fibers	0.5 days	Tue 01/09/20	Tue 01/09/20	3,20,27,34	EN/SMM/HPA	
measurement of cavity position, transport lane blocked 1 day	1 day	Tue 01/09/20	Wed 02/09/20	37	EN/SMM/HPA	
▾ RF system recommissioning	5 days	Mon 31/08/20	Fri 04/09/20			
RF amplifiers restart	2 days	Mon 31/08/20	Tue 01/09/20	32,33	BE/RF/PM	
Check of functionalities	3 days	Wed 02/09/20	Fri 04/09/20	40	BE/RF/PM	
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▾ External SPS constraints	30 days	Mon 26/10/20	Fri 04/12/20			
Fire system check - no access	5 days	Mon 26/10/20	Fri 30/10/20		SPS constraints	
PPS Global Test	5 days	Mon 02/11/20	Fri 06/11/20		SPS constraints	
SPS closed	0 days	Fri 04/12/20	Fri 04/12/20		SPS constraints	
Access system operational	0 days	Mon 09/11/20	Mon 09/11/20	45	SPS constraints	
primary water plant maintenance	1 wk	Mon 30/11/20	Fri 04/12/20		SPS constraints	
▾ Cooldown & RF Conditioning	100 days?	Mon 31/08/20	Fri 15/01/21			

30/06/2020

G.Vandoni - WP4 Coordination, 30th June 2020

## Actors in the loop:

BE/RF/PM	G.Cipolla E.Montesinos (C.Julie)
BE/RF/CS	D.Glenat
LLRF	P.Baudrenghien
TE/VSC	C.Pasquino
TE/CRG	J.Metselaar J.Casas B.D'Hulster L.Alaux S.Claudet
Survey	V.Rude
AL4030	F.Monnet
Table	K.Artoos
Tuners	K.Artoos

# Final steps

## Cryogenics

Missing instrumentation reconnection and test  
Missing X-ray and pressure test for new line at the surface

## RF

Functionality tests of all circuits & check of signals

## Tuners

Cable repair  
Final check of motor rotation, end switches, programming new load cells

## Survey

Reconnection of optical fibers  
Final position measurement on cavities

Mutual  
interlock  
checks

Vacuum  
Cryo  
RF power  
Access  
Table

→ Cooldown

# Cooldown & RF conditioning

primary water plant maintenance	1 wk	Mon 30/11/20	Fri 04/12/20		SPS constraints
▲ <b>Cooldown &amp; RF Conditioning</b>	<b>100 days?</b>	<b>Mon 31/08/20</b>	<b>Fri 15/01/21</b>		
▲ <b>Final cooldown sequence</b>	<b>75 days</b>	<b>Mon 31/08/20</b>	<b>Fri 11/12/20</b>		
Cryogenic tests after works finished, w access	1 wk	Mon 31/08/20	Fri 04/09/20	42	TE/CRG/OP
Cryogenic cooldown w/o cryomodule w access	1 wk	Mon 07/09/20	Fri 11/09/20	51	TE/CRG/OP
Cooldown of cryomodule for CRYO OK, limited access	3 days	Mon 14/09/20	Wed 16/09/20	52	TE/CRG/OP
Helium recuperation before water plant stop	2 days	Tue 24/11/20	Thu 26/11/20	48SF-2 days,53	TE/CRG/OP
Cooldown whole system	1 wk	Mon 07/12/20	Fri 11/12/20	48	TE/VSC/OP
▲ <b>RF commssioning and cavity conditioning</b>	<b>64 days?</b>	<b>Tue 20/10/20</b>	<b>Fri 15/01/21</b>		
RF ramp-up and first conditioning	25 days?	Tue 20/10/20	Tue 24/11/20	53,54SF	BE/RF/PM
RF ramp-up and second conditioning	25 days	Mon 14/12/20	Fri 15/01/21	55	BE/RF/PM

Coordinated between RF and Cryo on the field

Cryo to start before SPS closure

- Needs access possibility for cryo staff
- Needs access restriction possibility during transients (night/ week-end)

# Cooldown & RF conditioning – our requests

Request	Requisites	Link	Duration
Cryogenic commissioning	<ul style="list-style-type: none"><li>▪ Power</li><li>▪ Network</li><li>▪ Water (raw)</li><li>▪ Vacuum (beam &amp; insul.)</li></ul>	L.Alaux S.Claudet (G.Cipolla)	2 weeks (1 may be    to RF start)
DSO tests	<ul style="list-style-type: none"><li>• The above</li><li>• PPS operational</li><li>• Table tested</li></ul>	D.Vaxelaire C.Gaignant (G.Cipolla)	1 day
RF commissioning & cavity conditioning	<ul style="list-style-type: none"><li>▪ The above</li><li>▪ Water (demi)</li><li>▪ SPS access closed status</li><li>▪ Cryomodule cold</li></ul>	E.Montesinos (G.Cipolla)	5-7 weeks Continuous

# SUMMARY

## Test stand closure

Planning for closure well mastered

LLRF ? Can work in parallel to all others

~~Resources highly solicited elsewhere + holidays may reduce the slack~~

Comfortable advance in works,  
with cryogenics main actor

## Cooldown & RF Commissioning & conditioning

- Cryogenic commissioning & cooldown to start during IST test period
- Then warm-up and water plant commissioning
- Then cooldown & RF conditioning resumed in hardware commissioning

RF conditioning needs

- Non dis-continued RF
- No access to SPS during RF conditioning period
- Water for cryo-plant and RF

Now scheduled during  
Hardware commissioning