SPS							
Machine Coordinator last week	Stephane Cettour Cave						
Machine Coordinator this week	Michael Schenk						
Beam Scheduled							
LHC	Yes	***NA***	No	***AWAKE***	No	***HiRadMat***	No
Beam Availability by Destination (AFT)							
LHC	-%	***NA***	-%	***AWAKE***	-%	***HiRadMat***	-%
Facility Status							
Summary	**An very intense week** • DSO test North Transfer, EHN1, EHN2, TCC8, ECN3 fully completed Beam permit signed North Transfer HIRADMAT • Beam extracted to HIRADMAT Pilot beam 1.2e10 ppb Indiv beam 1.1e11 ppb Indiv beam 2.7e11 ppb • We prepared 3 beam for HIRADMAT with tune setting in trim history Pilot beam 1e10 ppb Indiv beam 1e11 ppb Indiv beam 3e11 ppb We will need time to complete the synchronisation of extraction and the bunch rotation • MKP alignment did for 200ns of batch spacing, we will need more time for fine tuning • Completed setup feedforward loop but with some issues Gregoire need to discuss with Arthur to found a solution. The phase loop and the feedforward loop going in different direction • Danilo completed the calibration cavities voltage • 8b4e beam 2X56 bunches spaced by 250ns at 2e11 ppb took on LHCMD3 In opposite of last year we could control vacuum spike amplitude on 800 MHz • Awake cycle with an indiv beam at the intensity of 1e11 ppb ready for next Thursday but without bunch rotation on demand of Edda • We lauched different SC configurations and measure the impact of the hysteresis on tune at FB **Srubbing run** • The scrubbing continued using trains of 72 bunches with the main focus on further conditioning the new MKP-L and on attempting to condition the MKD-H with high intensity. At the beginning of the week, MKDH pressure spikes exceeding the hardware interlock level were observed at flat top with 4x72 bunches and 1.54e11 p/b. Throughout the week (and sometimes in parallel to feed-forward commissioning), scrubbing was performed using the specially created 400 GeV cycle with a long flat top to achieve short bunches for extended durations. Scrubbing periods with single batches of high intensity (up to 2e11 p/b at flat top) were alternated with periods of using 4 batches and gradually reducing the bunch length at flat top, which turned out to be relatively effective even though the MKDH pressure spikes remained sometimes quite unpredictible. On Thursday night it was possible to reach 1.8e11 p/b at the 400 GeV plateau with 4 batches and 1.6 ns bunch length (i.e. what is needed for LHC injection) with quite good beam transmission (almost 95%). In some occasions, sparks were encountered on the MKP-L and the MKP-S requiring the intervention of the Piquet or the ABT kicker expert. To be mentioned also that increased temperature was observed on the MKP-S as expected due to beam induced heating in particular when running with high intensity multi-batch beams. This required some cool-down						

	periods especially during the weekend. If time allows, scrubbing for even higher intensity can be attempted in the coming days. • A test with the 8b4e beam on Wednesday was also successful. Using the 400 GeV cycle the pressure spikes in the region of the 800 MHz cavity 1 (and LSS6 close to the start of TT60, which also reacted to this beam configuration with pressure spikes) could be conditioned with beam. At the end of the session, a maximum of 2e11 p/b could be achieved with 1.6 ns bunch length at flat top with 2 batches spaced by 250 ns (last year the maximum intensity for this configuration was below 1.8e11 p/b). This gives hope that also this part of the machine can be conditioned for the high intensity beams (8be4 in this case). **Thanks to Hannes for the summary**
Issues	• One MPS station SMD10 tripped and needed an intervention to change one fuse in protection relay in BE • Fire alarm in BA6, fire brigade need to do a patrol, back to a normal situation (CV investigating on ventilation) • Beam stop for 2h00, access in NToF target • Beam stop for 3h00, access in BA1 to analyse the tunnel cracks • In the WE no beam from PS for 2h00 • Problem with PC RQID.660400 connected to a dipole for fire ball experiment has been solved • Setup 800 MHz on HIRADMAT1 but we lose the communication with these FECs cfv-ba3-allfb800c1 cfv-ba3-allfb800c2 We tried to reboot them but after, we have lost the hardware setting. We needed to redrive several parameters. Anthony Rey, Gregoire Hagmann and Yvan Karpov tried to solve the problem (This problem will need to follow up) • Access system in faulty in ECA5, PLC communication error need an intervention of access expert, after replacement of several cards • Vacuum valve in TT60 VVFA_610213 was in error (state undefined) since 21h00 on Friday without interlocked the extraction After intervention the piquet did several tests with the gauge coupled to this valve and the interlock working fine but we could not close manually this valve Need to investigate more (maybe this valve is blocked open) Apparently the beam injected in the LHCB1 before the repairing of this valve had an emittance to high and after the intervention the emittance was fine Maybe we can conclude that this valve was closed and did not interlock the extraction so we have send the beam in LHCB1 across this valve To be checked • F. Dos Santos: request to inspect once per month the tunnel cracks to measure movements. Call P. Bestmann. • Access validated on April 19 for tunnel cracks inspections and works (duration all the day) • **MKP and MKDH vacuum reset needs proposition - certain part of resets can be done by operators as long as we are scrubbing:** ▪ Distinguish between vacuum spike and sparks! ▪ First line, operator can reset vacuum spike; second line is expert in case of sparks; third line is piquet for everything else than vacuum activity, i.e., conditioning; ▪ On the kicker application there is a clear YES/NO switch that teels if we are to classify this as spark or not; ▪ Definitively always put an entry in the logbook and tag the entry with the expert; ▪ At any beam stop - inform piquet and launch a conditioning for the MKP ▪ **Procedure to follow: SPS-OP will continue calling the experts** • **MKDH threshold changes for dumps at loewr energies:** ▪ **Procedureto follow: SBDS kickers vacuum interlock thresholds management during scrubbing runs | Document 2716721 (v.2.1)**

Plans	• Scrubbing needs to continue for the moment as MKP-L not yet fully condition up the ramp; cool-down times required as well as MKP-S are now limiting • Check if we can interlock on BQM bunch length in the SIS • Problem on vacuum valve VVFA_610213 in error and did not interlock extraction to LHCB1 (maybe correlated with vacuum valve blocked open) • On cavities 800MHz when we reboot these FEC (cfv-ba3-allfb800c1 cfv-ba3-allfb800c2) we have lost the harware settings • **Hiradmat** Pulsed list for week 21 from Nikos : ▪ User HIRADMAT1 ▪ Bunch rotation set ▪ 50 pilots (1E10) ; ▪ 150 single bunches 1E11 (“INDIV”) ▪ 150 single bunches with 3E11. (“AWAKE type”) **Pulse list** : ▪ Need bunch rotation like AWAKE

Beam Pulse List

No	Intensity			Beam spot *[mm]*		Bunch spacing *[ns]*	Bunch length *[ns]*
	# bunches	p/bunch	Total	Sigma_x	Sigma_y		
1-50	1	PILOT	1.00E+10	1	1	--	1
51-200	1	1.00E+11	1.00E+11	1	1	--	1
201-350	1	3.00E+11	3.00E+11	1	1	--	1

Intervention Request				
No	***Duration***		***Preferred date/time***	
Reason				
Impact				