

7 August 2023

ACCELERATORS & EXPERIMENTAL FACILITIES STATUS

SUMMARY OF WEEK 31 - 2023

Technical infrastructure – *J. Nielsen*

Linac 4 – *P. Skowronski*

PS Booster – *J.F. Comblin*

ISOLDE – *M. Lozano*

PS – *M. Fraser*

PS – East Area – *D. Banerjee*

PS – nTOF – *M. Bacak*

AD – ELENA – *P. Freyermuth*

SPS – *F. Velotti*

SPS – North Area – *D. Banerjee*

SPS – AWAKE – *G. Zevi Della Porta*

SPS – HiRadMat – Not running, no report

Linac 3 – *R. Wegner*

LEIR – Not running, no report

LHC – *E. Bravin*

CLEAR – *Wilfrid Farabolini*

Technical Infrastructure (TI)				
Facility Coordinator last week		Jesper Nielsen		
Facility Coordinator this week		Jesper Nielsen		
Statistics				
Alarms				
Phone calls		Incoming		Outgoing
ODMs				
Facility Status				
Summary	<p>Wed 02/08/23 22:20: TI has received a low reflection alarm (possible water pollution) on WMS101 (B1151). Looking at the trend we can see that the reflection value went down to around 500 from 19.45, the start of the rain, and rose back to normal value (around 15000) after 23.15, the end of the rain. No other intervention carried after the visual check. (No need to put in FOM)</p>			
	<p>Thu 03/08/23 11:24: PS operators reported that they lost all RF cavities, at the same time the alarm "EZD101*85 Fusible Departs Fusion" received.</p> <p>TI didn't take further action for what it seemed a glitch. The problem came directly from "Crowbar System" in fault, RF side directly. Not related with EL.</p>			
	<p>Sat 05/08/23 00:43: SPS Trip because of Main Magnet cooling BA5 shutdown. Fault on the electrical drawer of the pump P11200, caused a switch over to the standby pump and therefore a quick decrease of water flow (see trend), until the backup pump had started up. Will be investigated further what happened to the primary pump.</p>			
	<p>Sat 05/08/23 13:23: No power in barrack 887-1-A47 (HNA348) was reported by the users to SPS operations. TI on-site, interlock was caused by emergency stop. Interlock was reset and after checking, no buttons were pushed physically. Power was switched back on via the local power supply EXD417/HN1 and upstream on the EOD417/HN1.</p>			
Issues				
Plans				
Intervention Request				
Yes / No	Duration		Preferred date/time	
Reason				
Impact				

Linac 4			
Machine Coordinator last week	Piotr Krzysztof Skowronski		
Machine Coordinator this week	Athanasios Topaloudis		
Statistics			
Availability	98.5%		
Facility Status			
Summary	Good week w only 2 faults		
Issues	<ol style="list-style-type: none"> Sat. 9h20: PLC of debuncher RF line, piquets had to intervene, 2h20 downtime Mon 20h15: RFQ breakdown protection & recovery: 7min downtime 		
Plans			
Intervention Request			
Yes	Duration	4h	Preferred date/time -
Reason	Doors of the elevator		
Impact	Stops all proton based experiments		

PS Booster			
Machine Coordinator last week		JF Comblin	
Machine Coordinator this week		C. Bracco	
Beam Scheduled			
ISOLDE	Yes	PS	Yes
Beam Availability by Destination (AFT)			
ISOLDE	97 %	PS	98.5 %
Facility Status			
Summary	<ul style="list-style-type: none"> • Excellent and quiet week for the Booster with high availabilities. • All operational and MD beams delivered to the users as requested. • New MTE beam with larger vertical emittance created as requested by the SPS team. 		
Issues	<ul style="list-style-type: none"> • Wednesday evening, big losses appeared in BTY line. BTY.QFO153 was stuck in a random state. It was tricky to find because at first, it responded correctly to the commands we sent. First line was called. He reset the electronics. 4.5 hours of downtime for Isolde. • Friday morning, there was instabilities on ring 2 for high intensity beams. RF and B-train specialists had a look. It was found that the voltage level of the FMR sensor was too low. It was increased on all users, and this solved the problem. 		
Plans			
Intervention Request			
Yes	Duration	1h	Preferred date/time Monday 14th August
Reason	Regular inspections of BR.QFO11.		
Impact	No beam for all downstream machines and experiments.		

ISOLDE					
Machine Supervisor last week		Miguel Lozano Benito			
Machine Supervisor this week		Emiliano Piselli			
Beam Scheduled					
GPS	Yes	HRS	Stand by	HIE-ISO	Yes
Beam Availability by Destination (AFT)					
GPS	%	HRS	% N/A	HIE-ISO	90.6%
Facility Status					
Summary	<p>-44Ca15+ (stable) at 7 MeV/u delivered to ISS (XT02) the first of August in preparation for the radioactive beam.</p> <p>-50Ca16+ (radioactive) at 7 MeV/u delivered to ISS (XT02) from GPS the second of August. Laser ionized.</p>				
Issues	<p>Target and line heating trips.</p> <p>IHS RF power/amplitude drift.</p> <p>PLC auxiliary power supply had to be replaced.</p> <p>Problems with one of the RILIS lasers on Sunday morning.</p>				
Plans	A new run for ISS will start on Tuesday/Wednesday. 49Ca at 7.5 MeV/u				
Intervention Request					
Yes / No	Duration		Preferred date/time		
Reason					
Impact					

PS							
Machine Coordinator last week		Matthew Fraser					
Machine Coordinator this week		Bettina Mikulec					
Beam Scheduled							
East Area	Yes	nTOF	Yes	AD	Yes	SPS	Yes
Beam Availability by Destination (AFT)							
AD	95%	EA N	97%	EA T8	97%	EA T9	97%
nTOF	95%	SPS	91%				
Facility Status							
Summary	<ul style="list-style-type: none"> n_TOF requested low intensity cycles in place of nominals: 2 x 50E10, 2 x 100E10, 2 x 200E10 (probably will not be requested again this year) Increased SFTPRO V emittance from 2.2 um to 3.5 um to help SPS improve beam loss at TT20 beam splitters: transmission reported good in SPS BGI team continued measurement campaign, including multi-bunch beams 						
Issues	<ul style="list-style-type: none"> Access needed on Monday morning to repair C11 amplifier (1h45 downtime) KFA13 generator failed early Wednesday morning, piquet intervened, spare generator swapped in (7h downtime). Problems with reliability of spare persisted, switched back to repaired operational generator over weekend SIS blocking n_TOF on "beam size error" on Thursday morning: confusing situation, thought to be caused by behaviour of SIS when BI acquisitions are missing, even on non-TOF type beams (in this case an MD beam: the ELFT timing was too late) Strangely could only be reproduced on a specific timing user. To be followed up with SIS expert. Water flow problem on F16.BVT173 on Wednesday and water valve failure in PC of F16.BHZ167 yesterday evening (~ 3h downtime) 						
Plans	<ul style="list-style-type: none"> Need to access to fix C20-92's amplifier (1h30 needed): but not urgent as multi-bunch beams affected (no LHC beams) and can use spare C20-80 until a suitable access opportunity arises 						
Intervention Request							
No	Duration		Preferred date/time				
Reason							
Impact							

PS East Area							
Facility Coordinator last week		D. Banerjee					
Facility Coordinator this week		L. James Nevay					
Beam Scheduled							
T8	Yes	T9	Yes	T10	Yes	T11	No
Beam Availability by Destination (AFT) General: 97.2%							
Running T8	97.2%	T9	97.2%	T10	97.2%	T11	N/A
Facility Status							
Summary	T09: No issues. Changed to normal configuration for TechnoCLS. T10: Brief downtime caused by magnet BHZ027. Otherwise, no issues. T11: No user.						
Plans	<ul style="list-style-type: none"> T09: TechnoCLS continues T10: ALICE TOF continues 						
Intervention Request							
Yes	Duration		Preferred date/time				
Reason							
Impact							

PS nTOF			
Facility Coordinator last week		Michael Bacak	
Facility Coordinator this week		Michael Bacak	
Beam Requested			
Yes			
Facility Status			
Summary	Progressing with physics programme according to planning. Profited from the prepared low intensity variant (50e10 instead of 800e10 protons) for diamond detector test – extends energy range for flux measurement due to less gamma-flash. Many thanks to the PS team.		
Issues	No issues on experiment side		
Plans	<ul style="list-style-type: none"> • EAR1: 243Am(n,f) In stable data taking mode. Continues for for about 2 weeks. RP-veto in the area. Next experiment prepared last Monday and ready to move in. • EAR2: 64Ni(n,g). Setup change on Wednesday (9h-17h) to 26Al(n,a) and (n,p) XS measurement for astrophysical interest – running for ~ 2 months. • NEAR: 2nd Diamond detector running successfully until Wednesday 		
Foreseen Beam Stop			
Yes	Duration	8h	Date/Time WED 09.08.23; 09h00

AD - ELENA			
Machine Supervisor last week		Pierre Freyermuth	
Machine Supervisor this week		Bertrand Lefort	
Beam Scheduled			
AD	Yes	ELENA	Yes
Availability (AFT)			
AD	85%	ELENA	85%
Facility Status			
Summary	Extracted intensity is now around 8E6 thanks to AD improvements and an increase of the PS proton intensity. A change of the timing for all Pow1553 in the DI line was successfully done.		
Issues	Few trip of the Main bending power supply, resettable.		
Plans			
Intervention Request			
Yes / No	Duration		Preferred date/time
Reason			
Impact			

SPS							
Machine Coordinator last week		F.M. Velotti					
Machine Coordinator this week		C. Zannini					
Beam Scheduled							
LHC	No	NA	Yes	AWAKE	Yes	HiRadMat	No
Beam Availability by Destination (AFT)							
LHC	-	NA	85%	AWAKE	97%	HiRadMat	-
Facility Status							
Summary	<ul style="list-style-type: none"> - Very good week of physics production and high availability (consistent with SPS availability average over the years) - AWAKE: Run started only on Thursday due to delay in the commissioning of the step-density plasma-cell <ul style="list-style-type: none"> o Taking regularly beam since then o Discussion on dedicated AWAKE run still ongoing - due to the difficult data taking of NA61, physics coordination is looking in how to optimise the schedule to allow for more dedicated time to NA61. - SFTPRO: HN1 change of access matrix 8 to 8:30 - no beam. MD finally stopped at 18:00 <ul style="list-style-type: none"> o Taken larger vertical emittance SFTPRO - transmission through the cycle basically not affected and losses in TT20 reduced by 10% with emittance from 2.2 um to 3.6 um o Empty bucket channelling kept from Thursday morning (in parallel with Adaptive Bayesian controller) to Monday - to be decided what to do. As the SC changes are minimal these days, it could be kept also longer. - Dedicated MD on testing crystal shadowing and EBC together - worked as expected but no additional loss reduction measured. <ul style="list-style-type: none"> o TT24-P42 optics measurements carried out in parallel - Parallel MD: automatic steering in TT2-TT10 with geoff4UCAP 						
Issues	<ul style="list-style-type: none"> - Recurrent trips of cavity 1 – operators have to often manually reset. Main issue of the week in the SPS - MKP problem: replaced heater module Gen2 PFN3 dump switch - 800 MHz cavities tripping on SFTPRO changing the momentum spread during extraction → RF team to look at it 						
Plans	<ul style="list-style-type: none"> - Need to agree with PS for 1.5h stop to plan this week for 20 MHz cavities for LHC beams - Discussions ongoing to schedule possible AWAKE dedicated run and to free time for NA61 – physics coordination following this up 						
Intervention Request							
No	Duration			Preferred date/time			
Reason							
Impact							

SPS North Area							
Facility Coordinator last week		D. Banerjee					
Facility Coordinator this week		L. James Nevay					
Beam Scheduled							
H2	Yes	H6	Yes	K12	Yes	P42	Yes
H4	Yes	H8	Yes	M2	Yes	TT20	Yes
Beam Availability by Destination (AFT) General: 80.7%							
H2	79.6%	H6	79.6%	K12	79.6%	P42	79.6%
H4	79.6%	H8	79.6%	M2	79.6%	TT20	79.6%
Facility Status							
Summary	<p>H2: Vertical beam movement correlated with H4 still ongoing, less prominent with 120 GeV/c. SY/EPC and TE/MSC continue investigating.</p> <p>H4: Smooth operation.</p> <p>H6: Operation ongoing smoothly.</p> <p>H8: Stable operation. Request for 300 GeV/c negative beam from Wednesday (wobbling change, implying negative 120 GeV/c for H6).</p> <p>M2: Stable operation continues. The MBPLs installed for NA64mu had wrong configuration of the power converters in CESAR which was fixed on 25th July, however the server held the old config so the change only took effect after the restart of the CESAR server on 2nd August during the MD. This was confirmed with the CESAR support.</p> <p>P42/K12: Good beam operation, no issues.</p> <p>T2/T4/T6 Sharing: Now with 40 mm target on T4, so in order to have the requested 27 units on T10, one would need 50 (T2) - 45 (T4) - 35 (T6). Wobbling change and lower intensity request for Thursday 10th Aug. The wobbling (-120 GeV/c H6, -300 GeV/c H8, +400 GeV/c P42) will be kept until 14th Aug. NA62 would then like to run with 22- 23 units on T10 until end of August, i.e., probably some 37 units on T4 (to be checked on Wednesday).</p>						
Issues							
Plans	<ul style="list-style-type: none"> • H2: NA61/SHINE continues. • H4: CMS-HGCAL → CMS ZDC EM • H6: ATLAS ITK, RD42 → ATLAS Itk Strip • H8: QFIB, SND → SND • M2: NA64mu → MUonE/AMBER Changeover 						
Intervention Requests							
No	Duration		Preferred date/time				

SPS AWAKE

Facility Coordinator last week	Giovanni Zevi Della Porta							
Facility Coordinator this week	-							
Facility Status								
Summary	Monday-Wednesday: completed commissioning of new Plasma Source and installation of Rubidium density diagnostics. Filled Rubidium reservoirs.							
	Thursday: started proton run							
	Summary of the week: very reliable proton beam							
		M	T	W	Th	F	S	S
	SPS extractions				589	429	832	1272
Hours of beam to AWAKE				4.5	2.7	5.2	7.8	
Hours with no beam				0	0.2	0	0	
	Daily activities:							
	<ul style="list-style-type: none"> - Thursday and Friday: beam commissioning of diagnostics - Saturday: access (align diagnostics) and first plasma (constant density) - Sunday: self-modulation at constant density and with density step 							
Issues	AWAKE-SPS timing issue was preventing extraction ("Fc not present"): tracked down by expert to new PLL board in AWAKE. Solved.							
Plans	Continue beam commissioning of new Plasma Source. Collect physics datasets with density steps of different sizes, at different positions along the plasma.							
Foreseen beam stop								
Yes / No	Duration			date/time				

LHC			
Machine Coordinator last week		Enrico Bravin	
Machine Coordinator this week		Elias Metral	
Statistics			
Availability	0%	Stable Beam Ratio	0%
Facility Status			
Summary	Recovering from a leak in the Q1-Q2 interconnect of the triplet left of 8. The replacement of the M2 bellow and all other related activities were completed by Tuesday evening. Cooling down of the triplet and D1 started in the morning of Wednesday. Reconnection and subsequent cooling of the arc 78 was supposed to start during the week-end.		
Issues	He leak between the cold mass and insulation vacuum of inner triplet left of 8 due to failure of the M2 line bellow. Repair and recovery without complete warm-up of sector 78 ongoing.		
Plans	Complete cool down of sector 78, then ELQA at cold and powering tests. Plan to restart operation with beam in week 37.		
Intervention Request			
Yes / No	Duration		Preferred date/time

Linac 3			
Machine Supervisor last week	R. Wegner		
Machine Supervisor this week	D. Kuchler		
Statistics			
Availability	N/A (Beam commissioning)		
Facility Status			
Ion species	Pb		
Summary	Source running quite stable Beam commissioning ongoing * ramping cavity scans * optimisation of transmission * stripper foil measurements Improvements on the new RF systems * digital LLRF limiter implemented to avoid amplifier over-drive * acquisition issue of ramping cavity solved (amplitude and phase) * cavity1 phase setting and acquisition values matched * patch to avoid software crashes		
Issues	Several software crashes of the digital LLRF toward the end of the week, a new patch was implemented on Friday (4.8.) evening and seems to work fine.		
Plans	Continue Beam commissioning		
Intervention Request			
Yes / No	Duration		Preferred date/time
Reason			
Impact			

CLEAR	
Facility Coordinator last week	Wilfrid Farabolini
Facility Coordinator this week	Alexander Malyzhenkov
Facility Status	
Summary	<ul style="list-style-type: none"> • On Monday 8:10 a.m. we stopped the beam and CLEAR went to the planned 3-week shutdown. • All magnets have been consigned, including SNI0120 that is in building 2009 • Robot controller removed for maintenance and upgrade. Second robot is also in the development • A few teams are working within the tunnel as initially planned, e.g. pulling cables for the turbo-pump, upgrading the CLEAR power plugs • Active work is ongoing for disassembling the old CTF3 beamline (drive bunch) to clean up the space for the 2nd clear beamline and refurbish the beamline elements: magnets, correctors, etc. • All the team members are actively participating in the process.
Issues	<ul style="list-style-type: none"> • No issues so far have been observed
Plans	<ul style="list-style-type: none"> • We anticipate continuing with this work as planned for the next two weeks • In the second week we will also start installation for several experiments foreseen after the shutdown, for example Plasma Lens Hardware, etc.