14 August 2023

ACCELERATORS & EXPERIMENTAL FACILITIES STATUS

SUMMARY OF WEEK 32 - 2023

Technical infrastructure – *J. Nielsen*

Linac 4 - *A. Topaloudis*

PS Booster – *C. Bracco*

ISOLDE – *E. Piselli*

PS - *B. Mikulec*

PS – East Area - *L. Nevay*

PS – nTOF – *M. Bacak*

AD – ELENA – *P. Freyermuth*

SPS – *C. Zannini*

SPS – North Area - *L. Nevay*

SPS – AWAKE – *G. Zevi Della Porta*

SPS – HiRadMat – *Not running, no report*

Linac 3 – *D. Küchler*

LEIR – *Not running, no report*

LHC – *J. Wenninger*

CLEAR – *A. Malyzhenkov*

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					
Issues	***Wed 09/08/23 08:41***: BEQ1 compensator tripped, due to a low pressure on the cooling circuit. The pressure had dropped over some time, and when the alarm came it tripped. the alarm levels will be modified accordingly, to allow for earlier detection of low pressure on these circuits. ***Wed 09/08/23 09:47***: During a maintenance an emergency stop was triggered in ME3 sub station and multiple building in the Admin Zone went in blackout. ***Wed 09/08/23 20:16***: Alarm for a leak on cooling circuit racks USC55 after 2 former acknowledged leak faults on the same circuit. Rupture found on a automatic valve. Circuit racks provides the cooling for the TOTEM compressor als. TOTEM rest off for the night and cooling circuits racks too. ***Fri 11/08/23 12:52***: FSEP-00007 Circuit eau brute Cool FAIR stopped on low level alarm on the cooling tower. CV piquet was called to help restart the circuit. Cryo WATT (B180) was impacted by this problem. ***Fri 11/08/23 21:57*** : Nearly all JEC DAQ OPC and everything on TIM process state restart multiple times. It seems to be a known bug: TIM restart and Lock itself out of the database				
Plans					
Intervention Request					
Yes / No	**Duration**		**Preferred date/time**		
Reason					
Impact					

Linac 4				
Machine Coordinator last week	A. Topaloudis			
Machine Coordinator this week	A. Lombardi			
Statistics				
Availability	100%			
Facility Status				
Summary	Excellent week!			
Issues	Recurring issue with the watchdog and power converters every night before midnight is being investigated. Minimal impact to operations.			
Plans	Regular operation			
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	Chiara Bracco			
Machine Coordinator this week	Foteini Asvesta			
Beam Scheduled				
ISOLDE	Yes		***PS***	Yes
Beam Availability by Destination (AFT)				
ISOLDE	100%		***PS***	100%
Facility Status				
Summary	Very smooth week of operation with no stop			
Issues				
Plans	Deliver beam to downstream machines, experiments and for MDs			
Intervention Request				
Yes	***Duration***	1 hour	***Preferred date/time***	14/08 (beam stop at 7:30, access at 8:00)
Reason	Periodic inspection of QFO11 water leak, in parallel, installation of a second camera for remote checks and inspection of BSW			
Impact	No beam for downstream machines and experiments for 1 hour			

ISOLDE

Machine Supervisor last week	Emiliano Piselli
Machine Supervisor this week	Eleftherios Fadakis

Beam Scheduled					
GPS	Yes	***HRS***	No	***HIE-ISO***	Yes

Beam Availability by Destination (AFT)					
GPS	97.1%	***HRS***	%	***HIE-ISO***	97.9%

Facility Status	
Summary	Beam from GPS to Hie-Isolde experiment ISS (XT02 beamline). On Tuesday we have switched radioactive beam delivered to users from 50Ca16+@ 7.0MeV/u to 49Ca15+ @ 7.5MeV/u. On Wednesday afternoon we have changed to stable beam 40Ar13+ @ 7.5MeV/u in order to calibrate users detector and then, by the evening back to radioactive beam 49Ca15+ @ 7.5MeV/u. Medicis target irradiation on GPS until Tuesday morning. Target change on HRS on Thursday. Stable beam tuning started on Friday for HRS.
Issues	No major issues. Small issues: - Few trips of cavities - 3 target/line failure - 1 failure of the EBIS Electron Gun Voltage. On Sunday, assistance was received over the phone from F. Wenander (BE-ABP), who was on holidays. Guidance was provided through the process to restart the system. Many thanks to him!
Plans	Stable beam for HRS on Monday, radioactive beam since Tuesday. Medicis irradiation.

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

PS							
Machine Coordinator last week	B. Mikulec						
Machine Coordinator this week	A. Huschauer						
Beam Scheduled							
East Area	Yes	***nTOF***	Yes	***AD***	Yes	***SPS***	Yes
Beam Availability by Destination (AFT)							
AD	97.2%	***EA N***	97.6%	***EA T8***	97.6%	***EA T9***	97.6%
nTOF	97.2%	***SPS***	97.2%				
Facility Status							
Summary	- Prepared and sent a very low intensity TOF parasitic cycle of 10e10 p at n_TOF request for a specific experiment - Ongoing BGI calibrations - Worked on EAST_T8 cycle to recover full intensity - AD transfer line re-steered on Thursday to recover transmission - PSB-PS energy matching observed to be incorrect (last check in April, reason for change not understood) → new energy matching (+9 G in PSB) applied to LHCINDIV and SPS MD beams for Wednesday (72b standard and 56b 8b4e)						
Issues	- Tuesday: specialist repaired 10 MHz cavities 91 and the spare 11 - Friday: wire scanner 54H used for MTE measurements out of order (bearings?), can use WS68 but would benefit from comparative measurements on same cycle - Friday to Saturday night: the barrier-bucket stopped working on MTE and all 10 MHz cavities tripped; LLRF piquet had to come in and locally reboot the h16 controller; C10.91 had to be restarted by the HLRF piquet in the morning (spare cavity used in the meantime) - Monday morning: access to intervene on a 20 and a 40 MHz cavity						
Plans							
Intervention Request							
No	***Duration***		***Preferred date/time***				
Reason							
Impact							

PS East Area							
Facility Coordinator last week	L. Nevay						
Facility Coordinator this week	N. Charitonidis						
Beam Scheduled							
T8	Yes	***T9***	Yes	***T10***	Yes	***T11***	No
Beam Availability by Destination (AFT) General: 97.2%							
Running T8	98.3%	***T9***	98.3%	***T10***	98.3%	***T11***	N/A
Facility Status							
Summary	T09: Good operation week. The magnet MDX 85 installed for the users pulsed in direct. Controls have been updated. Changes to be reverted back on 16th Aug. T10: Smooth operation. T11: No user.						
Plans	• T09: TechnoCLS → Enubet • T10: ALICE TOF ALICE ITS3 (Tuesday 15 Aug)						
Intervention Request							
No	***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. Very low intensity variant – 10e10 ppp – for diamond detector test extremely successful providing first in-beam TOF data at newest beamline (NEAR)			
Issues	No issues on experiment side			
Plans	• EAR1: 243Am(n,f) until next week (several stops for dismounting and new setup) • EAR2: 26Al(n,p) and (n,a), running for ~ 2 months. • NEAR: 2nd Diamond detector running successfully until Wednesday			
Foreseen Beam Stop				
Yes	***Duration***	8h	***Date/Time***	WED 16.08.23; 09h00

SPS

Machine Coordinator last week	Carlo Zannini
Machine Coordinator this week	Kevin Shing Bruce Li

Beam Scheduled

LHC	No	***NA***	Yes	***AWAKE***	Yes	***HiRadMat***	No

Beam Availability by Destination (AFT)

LHC	%	***NA***	94.6%	***AWAKE***	98.4%	***HiRadMat***	%

Facility Status

Summary	Good week at the SPS mainly with beam to the North Area (NA), AWAKE run, dedicated MDs on Wednesday and short parallel MDs on Tuesday and Friday. **North area (SFTPRO beam)**: • Intensity adjustment/increase on SFTPRO to accommodate physics request. • Dedicated MDs on Wednesday on crystal shadowing • Empty bucket channeling successfully running on operational cycle. **AWAKE:** beam delivered according to request the full week. **MDs**: • Short parallel MDs on Tuesday and Friday with very good beam availability • Dedicated MDs on crystal shadowing on Wednesday • Long parallel MDs to push intensity on the LHC standard beam not possible due to RF 800 MHz cavity 1 issue
Issues	• Issue with RF cavity 1 800 MHz (fault of the DAC of the cavity control). Wednesday MDs with high intensity LHC beam not possible and no EBC on SFTPRO from Wednesday at 18:00 to Thursday at 13:00. • Several cavity 1 200 MHz trips • ~1h downtime due to cavity 1 200 MHz fault (PA4 filament)
Plans	NA physics, MDs on Wednesday, Thursday and Friday (**wire scanner stress test with standard beam, brightness studies with BCMS beam and 8b4e test**).

Intervention Request

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

SPS North Area

Facility Coordinator last week	L. Nevay
Facility Coordinator this week	N. Charitonidis

Beam Scheduled

H2	Yes	***H6***	Yes	***K12***	Yes	***P42***	Yes
H4	Yes	***H8***	Yes	***M2***	No	***TT20***	Yes

Beam Availability by Destination (AFT) General: 80.7%

H2	84.7%	***H6***	84.7%	***K12***	84.7%	***P42***	84.7%
H4	84.3%	***H8***	84.7%	***M2***	NA	***TT20***	84.7%

Facility Status

Summary	**H2**: NA61 data taking ongoing. Issue with cooling of TPC electronics resolved yesterday. **H4**: Normal operation. No issues **H6**: Negative polarity due to T4 wobbling change. Smooth operation otherwise. **H8**: Wobbling change for SND, -300 GeV/c secondary from 10/08 to 14/08. First electrons (-288 GeV/c) observed during wobbling change. Good operation. **M2**: No user. **P42/K12**: Running at lower intensity of 22 units on T10 on request of NA62. **Wobbling change** done on Thursday, 16:00 to H8 300 GeV/c negative, H6 120 GeV/c negative. Reverse back to H8 180 GeV/c positive and H6 120 GeV/c positive on Monday 11:00, after the PS intervention. **Sharing**: Due to NA62 request, T4 intensity was asked to be lowered to 43 units. After the wobbling change on Monday, the intensity might have to be very slightly adjusted, depending on the transmission found. For now, 50 (T2) - 43 (T4) - 30-35 (T6) has been requested. First test on H2/4/6/8 beam coupling done but ongoing.
Issues	
Plans	• H2: → HIKE SAC • H4: → FASER NU • H6: ATLAS ITK STRIP → ATLAS ITK PIXEL • H8: SND → AMS L0 / PAN • M2: NA64mu → MUonE/AMBER Changeover

Intervention Requests

Yes	***Duration***	1.5hrs	***Preferred date/time***	Thursday 17th morning for EHN1 (H2/4/6/8 only with no access)

SPS AWAKE

Facility Coordinator last week	Giovanni Zevi Della Porta
Facility Coordinator this week	-

Facility Status

Summary

Summary of the week: very reliable proton beam and vapor source

	M	T	W	Th	F	S	S
SPS extractions	749	870		1468	722	1286	1185
Hours of beam to AWAKE	4.6	6.3		9.0 (*)	5.2	8.0	7.3
Hours without beam (mainly changing density step)	4.6	4.5		1.3	0.2 (**)	1.3	1.0

Daily activities (every dataset at both 1E11 and 3E11 intensity):

- Monday-Tuesday: plasma density steps starting from 1.5E14/cm3. Steps of [0, 3, 6, 9] % at 1.25 m and 4.25 m
- Thursday-Sunday: plasma density steps starting from 4E14/cm3. Steps of [0, 5] % at 1.75m. Then steps of 3% and 6% at [1.25, 2.25, 3.25, 4.25] m
- Thursday-Friday: electron+proton datasets for Cherenkov Diffraction Radiation BPM R&D

Issues

(*) Difficult beam conditions on Thursday: changes in proton bunch length (tracked down to SPS 800 MHz cavity being off) and bunch size (tracked to PS). Both solved by the end of the day.

(**) Plasma source went to automatic cool-down on Friday due to a faulty over-temperature-controller (OTC). Two more OTC failed during the run, requiring hardware interventions in rack gallery. Issue to be followed up before the next proton run.

Plans

Limited access in TAG41 due to GSM cable installation. Vapor source tests.

Foreseen beam stop

Yes / No	***Duration***		***date/time***	

LHC				
Machine Coordinator last week	J. Wenninger			
Machine Coordinator this week	J. Wenninger & M. Solfaroli			
Statistics				
Availability	NA		***Stable Beam Ratio***	NA
Facility Status				
Summary	Cooldown of S78, the arc reached 20K on Wednesday, average arc temperature reached 4K at the end of the weekend.			
Issues				
Plans	Cooldown of S78, filling the arc with liquid Helium.			
Intervention Request				
Yes / No	***Duration***		***Preferred date/time***	

Linac 3				
Machine Supervisor last week	D, Küchler			
Machine Supervisor this week	G. Bellodi			
Statistics				
Availability	NA			
Facility Status				
Ion species	lead			
Summary	- Software and firmware updates of the RF - Linac optimization - Stripper foil characterization - Oven refill - By the end of the week the linac delivered more than 30 eμA stably			
Issues	- During oven refill sudden pressure increase in the source - Despite a thorough leak detection a leak could not be identified - During the leak search the source pressure improved suddenly by itself, not understood why - Source had to be re-conditioned, that's why the restart after the oven refill took three days			
Plans	- Debuncher characterisation - Wednesday – beam delivery to LEIR			
Intervention Request				
Yes / No	***Duration***		***Preferred date/time***	
Reason				
Impact				

CLEAR	
Facility Coordinator last week	Alexander Malyzhenkov
Facility Coordinator this week	Vilde Rieker
Facility Status	
Summary	• CLEAR is in the 3rd (and last) week of the shutdown • 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. • Magnets, girders, etc. have been removed and prepared to be taken out of the tunnel • CLEAR/Oxford summer students' review last Friday: excellent work has been demonstrated by the students in a short time
Issues	• No issues so far have been observed
Plans	• The disassembled elements to be removed from the tunnel • Installation for several experiments foreseen after the shutdown: Plasma Lens Hardware, etc. • Re-start of the laser and CLEAR start up after the shutdown