Summary of Work Activities 2008-9 Shutdown : non-LHC Machines

THE PRINICIPALS WHO COORDINATE THE WORK:

- *R.Scrivens (with Cristiano Mastrostefano) : Linacs*
- *F. Chappuis, D. McFarlane : PSB*
- *R Brown : PS & Tunnels*
- *N.Gilbert : SPS & Tunnels*
- *D. McFarlane: (with Tommy Eriksson) : AD*

LINACS : base activities planned & undertaken

- Source maintenance.
- Vacuum pumping group maintenance.
- Realignment of tank3.
- Repair of water leak on measurement line spectrometer magnet (LTL.BVT10). Installation of new cranes (to remove tank girders if necessary).

ALL THESE above activities HAVE BEEN COMPLETED to date

- Installation of 30T of additional shielding to Linac4 site, plus radiation monitor and blocking of tunnel emergency exit.

  The last 6T started (Thursday 12March) with the painting of the wall on following Friday or Monday 16th .

  Radiation Monitor is ready for testing with the access chain.

PSB

- Magnet HV & Insulation tests
- Reference Magnet consolidation (water pipes and insulators change)
- Replacement of overheating bus-bars
- Water flow meters add to BT line magnets
- Alignment survey in BT/BTP line
- SCRAPERS position investigation
- Fast Wire Scanners up-grade (new electronics)
- Vacuum leak repair in BTP line
- New Vacuum control (PLCs + cables change)
- Cabling of the Vertical Ring Pick-ups
- Cables change to receive the new ring corrector power-supplies (BR.DIP)

PS: overall work summary

- Renovate last 9 main magnet units (TE-MCS, TE-VAC, EN…)
- Consolidation of power supply and cabling for auxiliary magnets.
- Maintenance activities

PS in detail

- Renovate 9 last main magnet units 68, 70, 26, 65, 99, 72, 58, 69, 23. *These magnets represent the last of the planned refurbishment program of 51 magnets. The program started in the long shutdown 2004/6.*
- New vacuum chamber in MU23.
- The Ion injection vacuum chamber at MU25 has been re-installed, also the flat figure of eight winding, done without displacing MU25.
- There are 4 refurbished spare magnets, one of each type R, S, T, U.
- Wire scanner new electronic for SS54, SS64, SS65, SS85.
- New Q meter electronic in SS69 & SS72. The Q-kicker magnet in SS82 has been removed
- Calibration of pick-ups has been done. The gain to avoid the saturation problem with the CODD has been increased for few of them.
- Main power supply with new control (FGC)

PS: Re-cabling in PS tunnel and buildings 355/365.

- Elimination of isolation drawers in building 365 has been done in December 2008. Displacement of SMH16 & SMH26 power supplies from building 367 to 359 plus cabling has been done.

- Re-cabling of QSE, BSW23, BSW31, QKE16, BSW57, XSE , QKE16CT25, QKE16CT73, ODE, Triplets in tunnel and building 355 or 365 done.

- Reconfiguration of Doublets gamma-jump quadrupole new circuits in tunnel and building 365 done.

SPS

- Repair of 90 dipole manifolds (sectors 1, 2, 3 and 4), ending off the renovation project this year (254 Lintott magnets). Major problems with transport equipment, but very well managed. Only 4 days delay on initial planning;
- Replacement of about 10 damaged dipole magnets (mainly leaks, problems with shims, short circuits); 3 quadrupole magnets, and 3 other ones for SEY project (graphite coating, successfully installed in LSS5 on 10 and 11/03);
- Irradiated cable replacement campaign at BA2/LSS2-. 1 week shutdown extension requested (completion tests and repairs to damaged ZS cables on footbridge 1^{rst} floor);
- Installation of Crystal project in LSS5. Critical. Some equipment not delivered (Russian tank and SLAC roman pot). Commissioning to be started soon;
- Survey : TI2 – TI8 – TT20 realignments + all around the ring;
- LSS1 : MKDV1 (11731) was changed in week 3;
- LSS6 : 2 MKE (61634 & 61637) changed on week 6;
- LSS6 : 2 MSE (61857 & 61872) changed on week 6 as well (leak detected);
- TI8 : 4 new BPM's installed at the bottom of TI8 + upgrade BPM on top of TI8 (horiz. + vert. reading); 2 x 3 TI8 collimators renovated (replacement roller cages, …) (in progress);

SPS

- Power transformer oil treatment campaign at all BA's. Works successfully;
- Urgent repair on BCT 11601 (week 6);
- General maintenance / control campaign of SPS beam dumps & stoppers;
- Replacement liner on e-cloud experience (ECX5) in progress
- Last minutes EN/EL project : upgrade electrical network control crates (old MICENE) by new ones connected to SCADA. Just started.
- Installation campaign for identification plates in TT41, TI2, TI8 (in progress);
- Update campaign of layout drawings. Pictures of entire main ring (in progress);
- + all usual inspections, AUG tests, electrical tests, maintenance, vault and slab repairs, cleaning, settings, equipment tests, …

AD

- Investigate fault on magnet DEBHZ7010
- Install additional new thermal switches on MCVA magnets
- Repair BIPMH (sector 15/16)
- Replace electro valve for MTV in target area
- Replace target and horn
- Replace scraper bellows
- Horn pulser- interlocks + controls upgrade.
- Main bending magnets coil movement measurements
- Strip-line renovation BHZ6024 and BHZ6025 (target area)
- Install new MTV for target area survey

LINACS :concluding remarks to take note of….

- Constantly changing access conditions to zones around the Linac2, due to work on Linac4 site. They are still constantly changing.

  (Meeting held on 11/3/09 with SC and CE on the topic)

- There will be periods in the run where access to the Linac2 tank cooling station, ventilation and RF power supply will only be possible on request (procedure to be defined by Civil Engineering).

  This will happen during the run, schedule to be communicated.

CONCLUDING REMARKS: PSB & PS

PSB:

- **The shutdown interventions are all finished (at 99%, e.g.: cleaning,...) without major problems or surprises. Presently, we are on the middle of the hardware test period and we are in time with the planning. Recently, during the HV test, we discovered the poor state of the Reference Magnet [concerning water pipes and bus-bar insulation]. The pipes are already replaced and we are able to continue the tests. The insulation is being fabricated, and will be replaced this week. We are confident to deliver the Booster operational by Monday 23/03 (on time) to BE-OP, ready for the next run; followed by beam on 30/3/09.**

PS :

- **Shutdown/installation work has been completed**
- **Hardware tests are on schedule to begin cold-checks out, etc., as planned: PS cold check-out starts 27th mars at midday**

CONCLUDING REMARKS: SPS, AD

SPS :

- Very dense shutdown this year;
- Amount of intervention requests abnormally increased after shutdown start-up;
- Machine closure delayed from 20/03 to 27/03. Knock-on effect on the date for the SPS beam restart

AD :

- Upto today there have been no major problems. (a few changes to schedules due to availability of people and such like)
- ***The key dates are as follows:***
- 17th April: Closing the shielding of the ring and end of shutdown period.
- 20th April to 11th May: Hardware tests
- 12th May:
- Beam in AD
- 8th June: Start physics.

- Additional slides….

Work & Activities Coordination is our "Music"

ABA Team is the "group" (without the 2nd 'B" !)

In MEF GROUP , EN DEPT, and ..... ***Simon is the Leader***

Persons & Roles

Accelerators' Superintendents

[work coordination: **Planning and coordinating all the installation, maintenance and repair, shutdowns]**

- **N. Gilbert: SPS**
- **R. Brown: PS**
- **D. McFarlane: PSB, AD, LEIR**

With :

S Mataguez /BE-OP for CPS
F.Chappuis /BE-OP for PSB
J.Ridewood/BE/OP for SPS

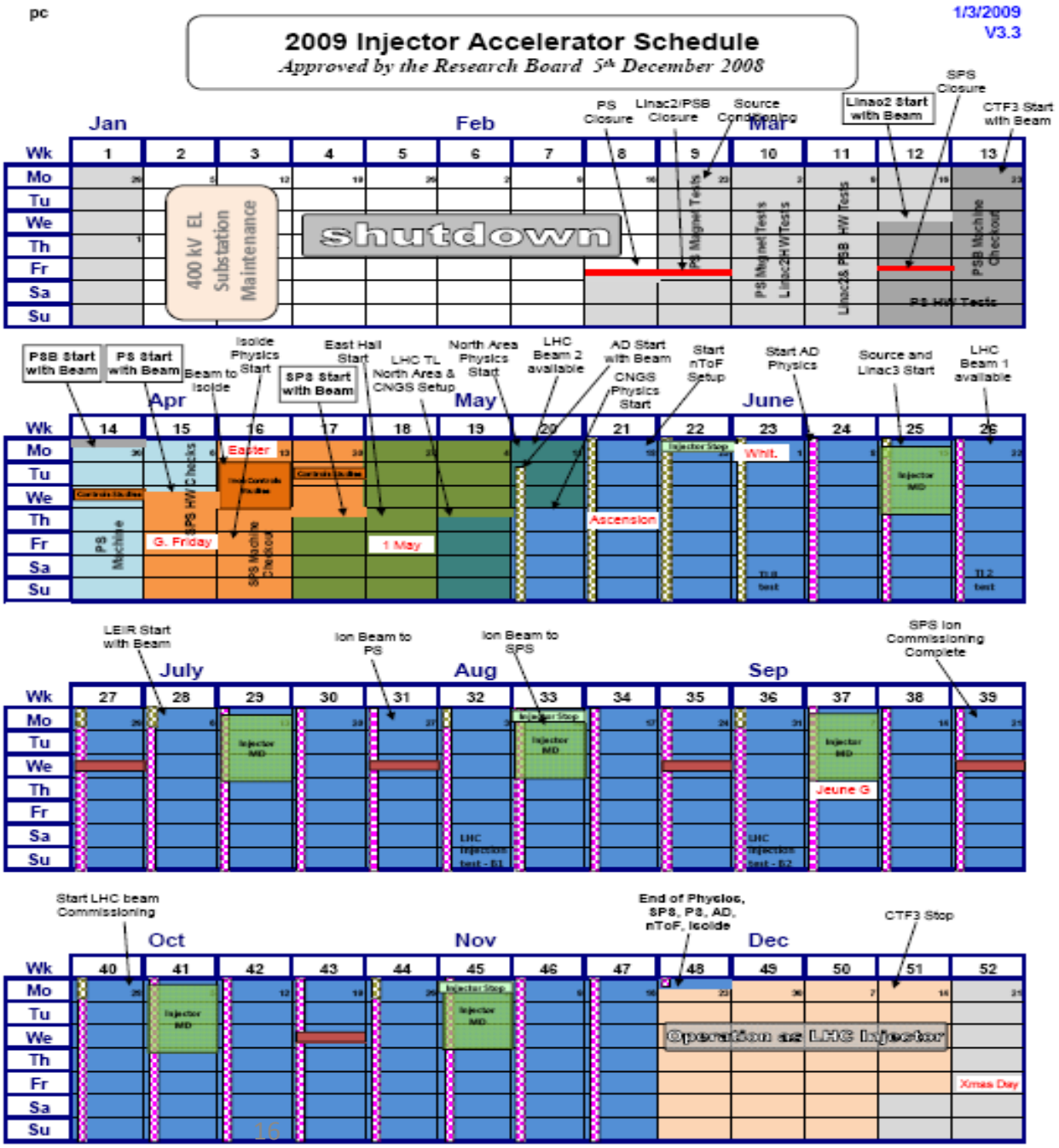
Infrastructure Support to LHC Expts. (LHC 4 points)

SWIC: Small Works Installation Coordinator(s), Safety….

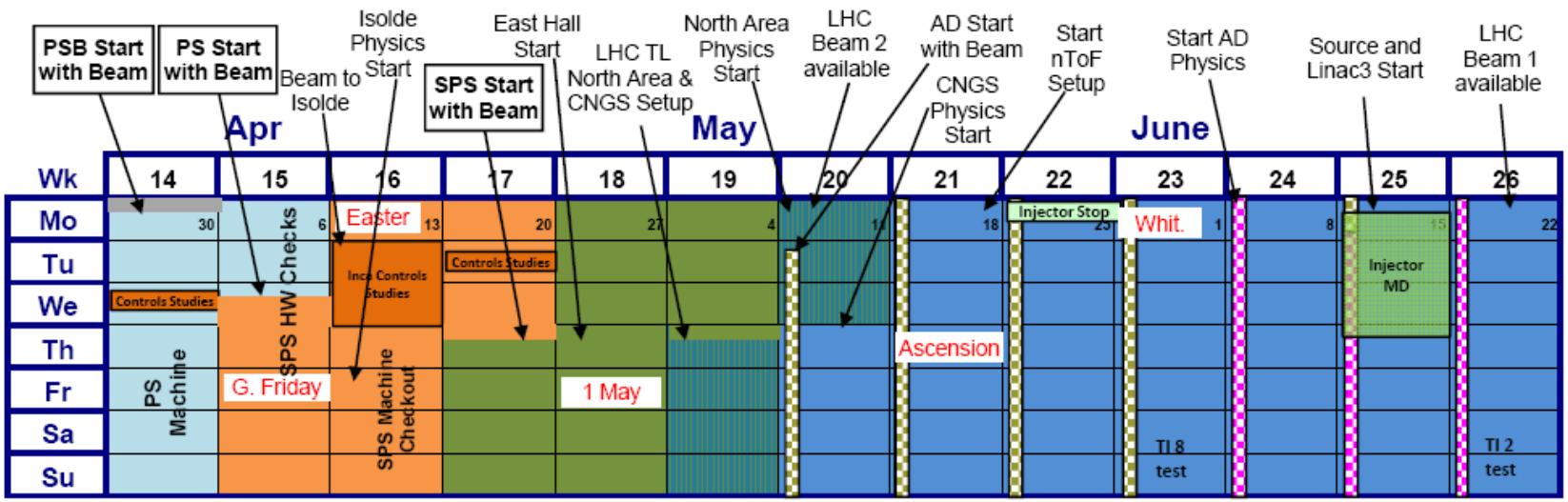
F. Bais : ATLAS
D. De Paoli : ATLAS
B. Lebègue : ATLAS
D. Hay : CMS
B. Moris : ALICE

Support for Beam Areas of non-LHC machines *[work coordination: Planning and coordinating all the installation, maintenance and repair]*

S. Girod : SPS North Area , CNGS ++
M. Lazzaroni: PS East Area, nTOF ++


pc
1/3/2009
V3.3
2009 Injector Accelerator Schedule
Approved by the Research Board 5th December 2008
Jan
Feb
Mar
Apr
May
June
July
Aug
Sep
Oct
Nov
Dec
Wk
Mo
Tu
We
Th
Fr
Sa
Su
Shutdown
400 kV EL Substation Maintenance
PS Closure
Linac2/PSB Closure
Source Conditioning
Linac2 Start with Beam
SPS Closure
CTF3 Start with Beam
PS Machine Checkout
PS HW Tests
PS Magnet Tests
Linac2 HW Tests
Linac2& PSB HW Tests
PSB Machine Checkout
PS Hw Tests
PSB Start with Beam
PS Start with Beam
Beam to Isolde
Isolde Physics Start
SPS Start with Beam
East Hall Start
LHC TL North Area & CNGS Setup
North Area Physics Start
LHC Beam 2 available
AD Start with Beam
CNGS Physics Start
Start nToF Setup
Start AD Physics
Source and Linac3 Start
LHC Beam 1 available
Easter
G. Friday
1 May
Ascension
Whit.
Injector MD
LEIR Start with Beam
Ion Beam to PS
Ion Beam to SPS
SPS Ion Commissioning Complete
Jeune G
LHC Injection test - B1
LHC Injection test - B2
Start LHC beam Commissioning
End of Physics, SPS, PS, AD, nToF, Isolde
CTF3 Stop
Operation as LHC Injector
Xmas Day

April - June



Isolde physics:	**17th April**
East Hall:	**31st April**
North Area:	**11th May**
CNGS:	**14th May**
AD Beam:	**12th May**
AD Physics:	**8th June**

Transfer line tests

Psb typical reports..

- HV tests performed 03/03 on main magnets:
- During these tests the Reference Magnet failed on two points:
- One of the insulator bracket supporting the busbar and water pipe smoked ;
- One of the demineralised-water hoses feeding the reference magnet leaked;

- The decision has been taken to change the whole set of insulators and pipes feeding the magnets. The pipes have already been changed, last week. The new insulators are under construction and will be mounted in middle of next week.

- Concerning the measures done (leakage current- magnets insulation):
- The last measures have been done in 1997. Roughly, the result found after the measures were a little under the expectations (comparing with the ones done in 1997) but still in the tolerances. This result seems due to the demineralised water conductivity too high. The filtering cartridge was changed before the test but the conductivity remains high. This problem is monitored by EN/CV.
- I am