

Overview of the main events related to TS equipment during 2007

Gerard Cumer – Rui Nunes – Serge Deleval

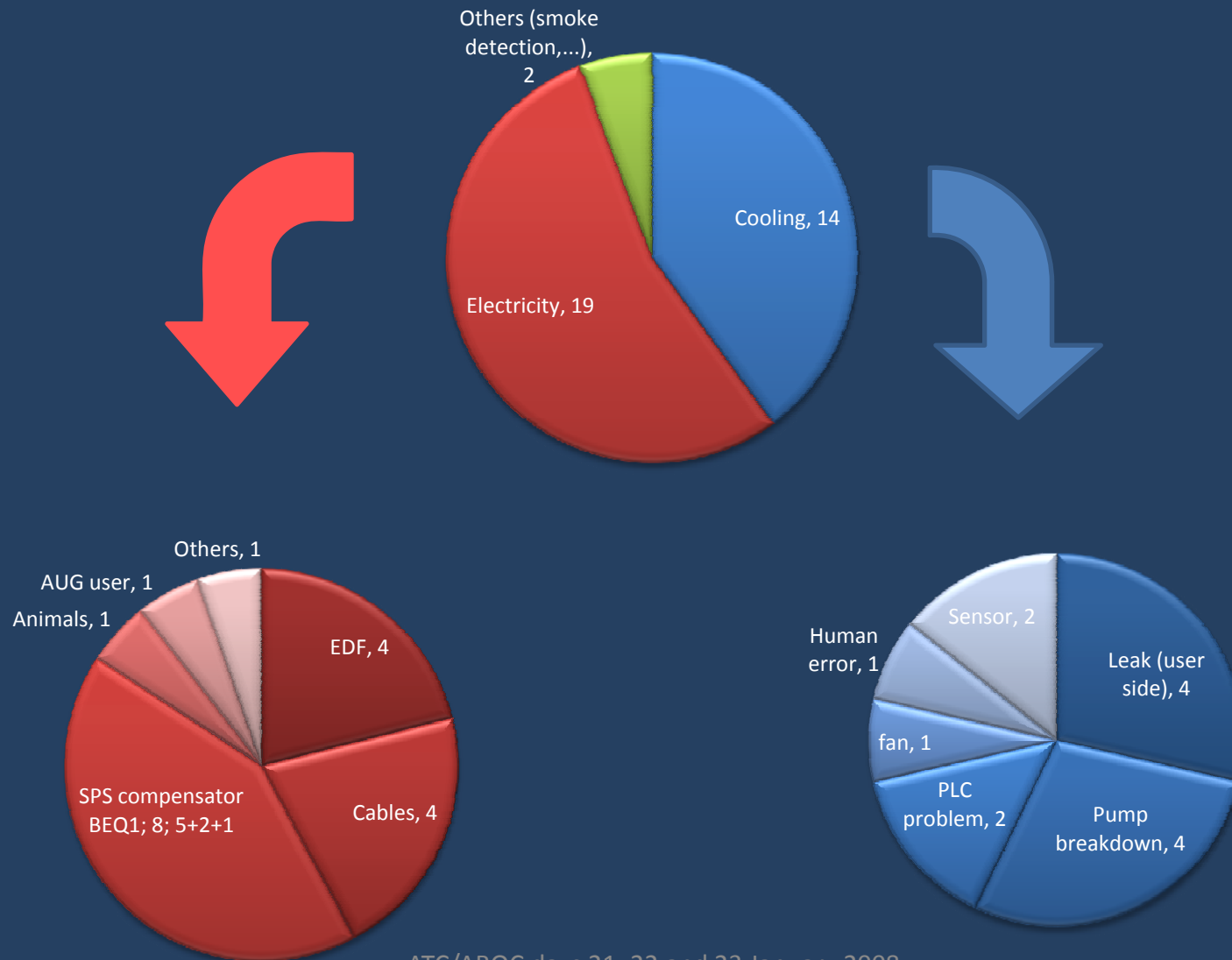
- Definition
- Number and category of the events
- Events and measures taken for each machine
- Conclusion

Definition

- The presentation is based on the Major Event Reports emitted by CCC
- Only events which affected accelerators or experimental areas (no LHC or other users)
- 35 events during the run 2007
- 176 hours

Rem : Time = from the stop, until the beam is back as it was before the problem.

Number and category of the events

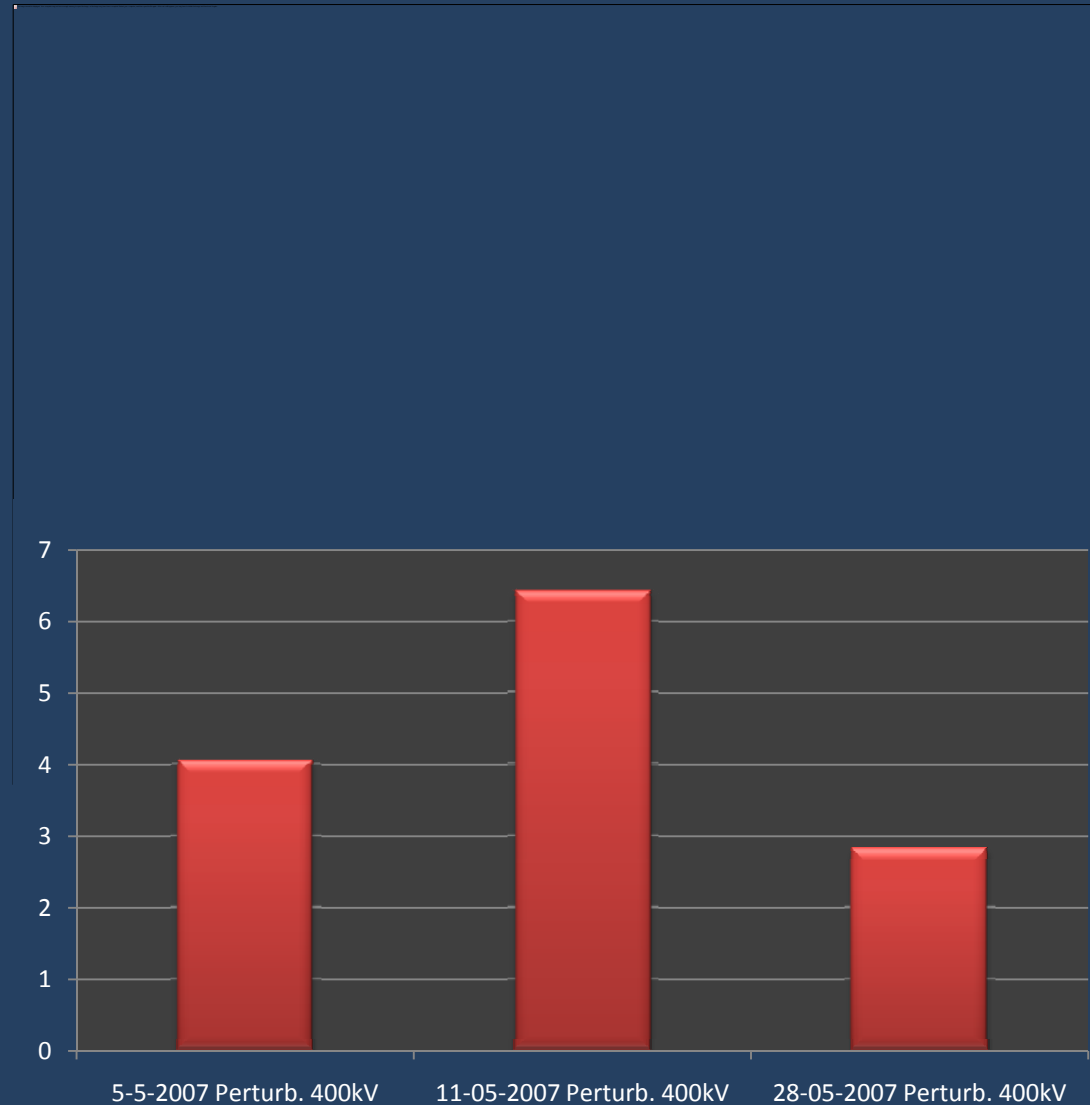


ATC/ABOC days 21, 22 and 23 January 2008

CERNwide problems

- 3 perturbations from EDF in May

Rem: For the stop no alarms and wrong state of the LEIR cooling station → new supervision



ATC/ABOC days 21, 22 and 23 January 2008

Linac 2 – Leir - Booster

24 June: Booster faulty temperature sensor in the motor

- Temperature probe not used anymore
- Other kind of protection

20 July : Linac 2 pump stopped without any fault

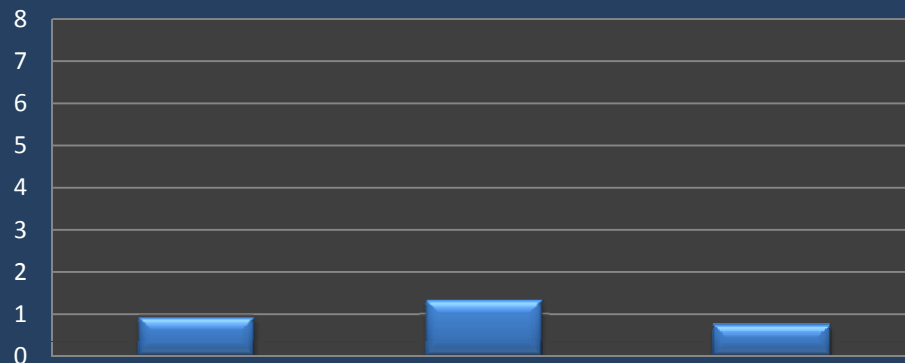
- Replacement of the circuit breaker
- Mechanical expertise still to be done

23 July : LEIR cooling stopped because of bearing

- Motor was replaced by a spare motor (+4h30)
- Original motor was repaired and put back in place

For Linac 2 : Black dust on the source. Filter installed.
Maintenance work will be done during this shutdown.

Linac - Leir - Booster

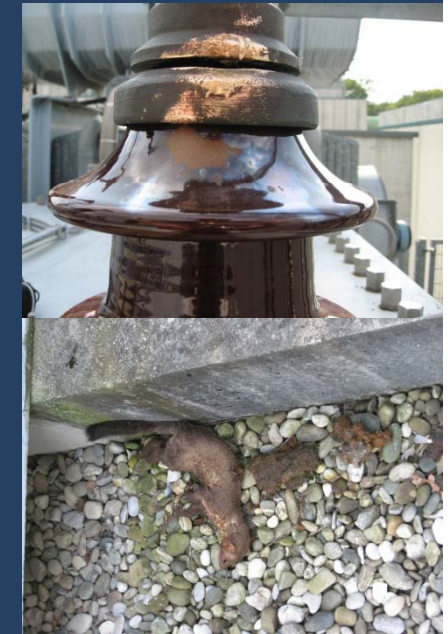


24-06-2007 Pump Booster 20-07-2007 Pump Linac2 23-07-2007 Pump Leir

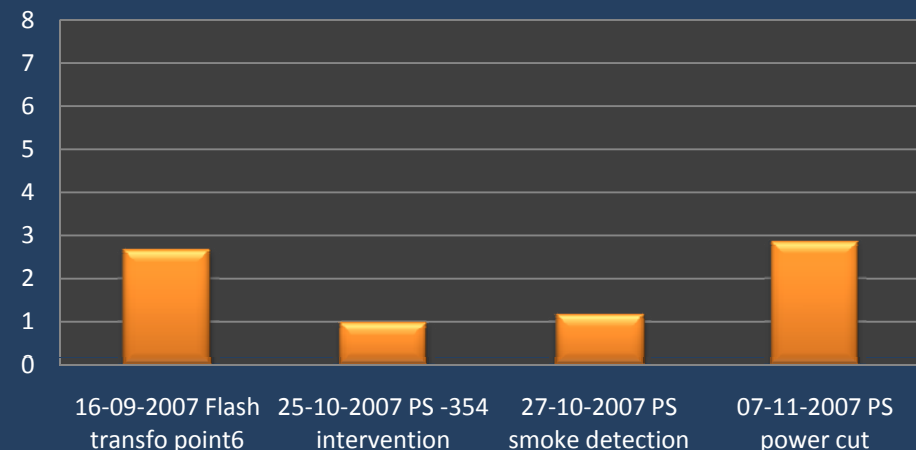


PS

- 16 September : Flash on the 66kV in LHC point 6 caused by a weasel. PS affected by the perturbation.
- 25 October : Planned power cut for the CMS control room (bldg 354). Written authorization given by the user.
- 27 October : Problem with a blocked pipe in the smoke detection system. Cleaned and restarted.
- 7 November : Low oil level on the transformer and cold temperature outside.
 - Wrong alarm level priority prevented earlier intervention of standby
 - Round for checking oil level every winter



PS



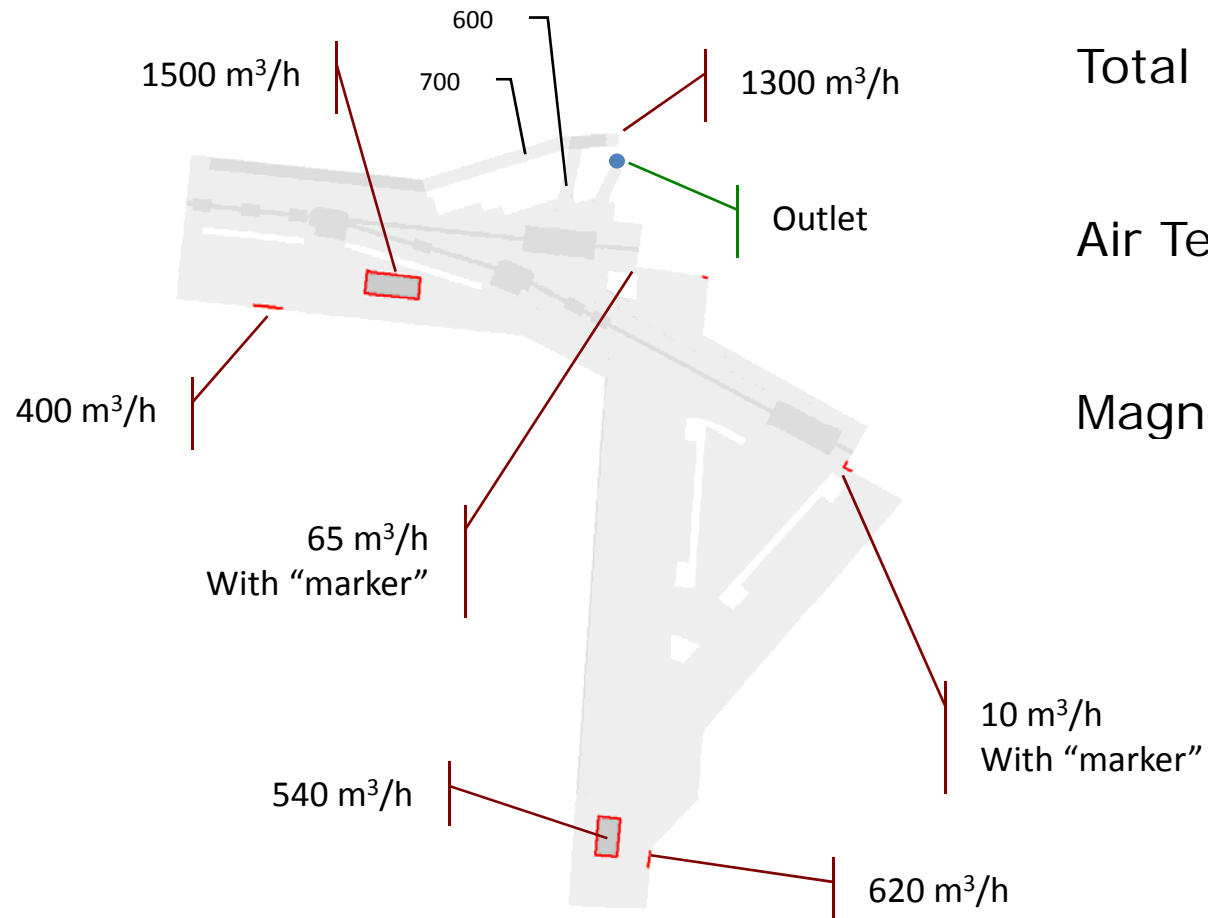
ATC/ABOC days 21, 22 and 23 January 2008

Isolde

The increase of the radioactive gas release :

- Check every device and characteristics of the ventilation system (flow, temperature, damper, filter, etc...)
- Tests to understand the problem (variation of the supply and return air flow, increase of the under pressure, etc...)
- In December 2007: air flow measurement in BEAM mode
- Modelisation of the tunnel and simulation for the existing situation and for several solutions

Isolde



Total inflow :
4500 m³/h

Air Temperature :
20 °C

Magnets Temperature :
35 °C

AD

21 July : Stopped more than 2 days following the mechanical breakdown of the fan for the controlled leak of the target.

No spare fan at CERN → 6h to get a new one.

August : No stop but very severe breakdown in the cooling tower

→ the rest of the run done without any backup



ATC/ABOC days 21, 22 and 23 January 2008

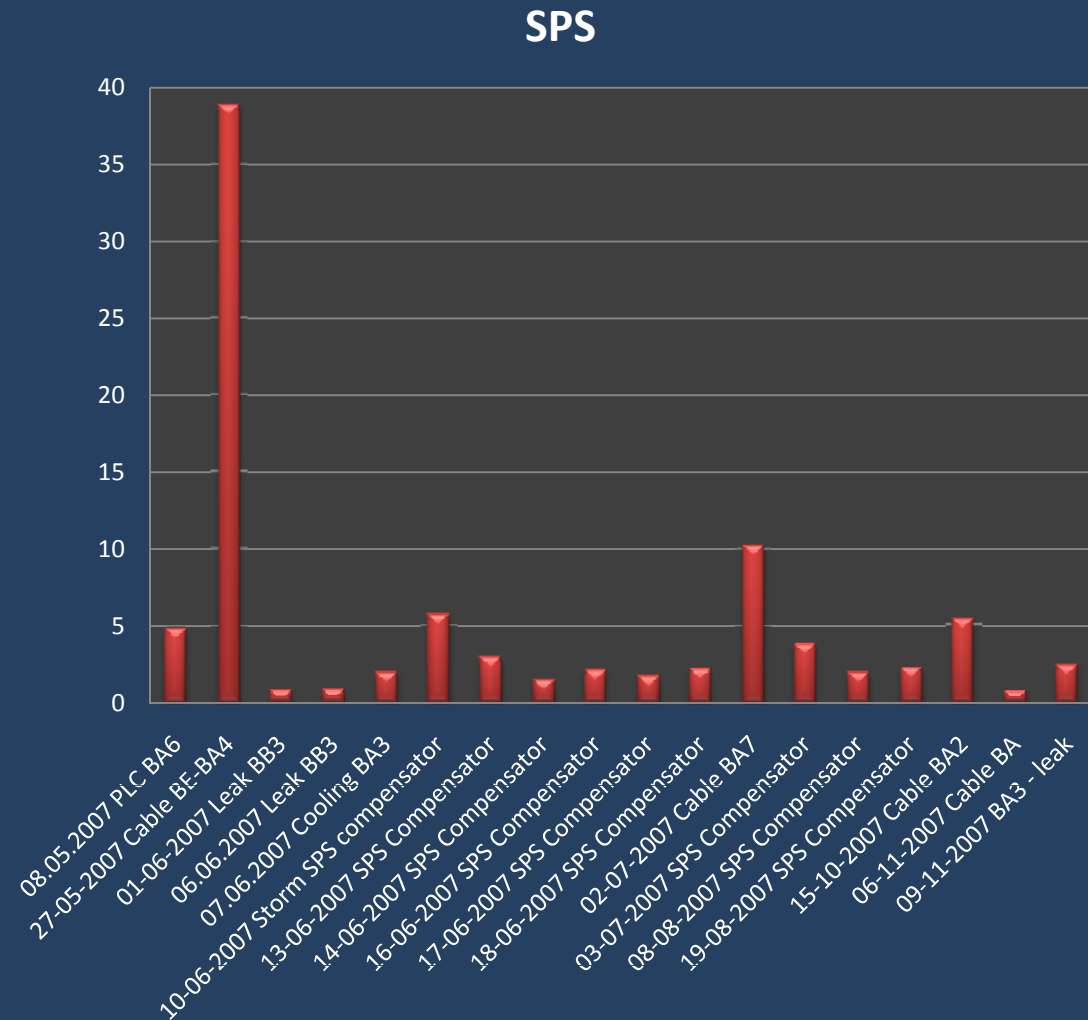
CTF3

- CTF3 : 1h shortcut on electrical connection of the motor of the pump.
 - Cable to be changed on both pumps

Rem : Filters blocked on the user equipment (MKS), still under investigation.

SPS

- 18 events for SPS
- 8 May in BA6 cooling: PLC CPU out of order. Spare parts available but problem with memory card.
- 27 May : failure on the connection of the new cable between BE and BA4
- 1 and 6 June and 9 November : leaks on the user side of the “Power Supply” circuit in BA3.
- 7 June : human error from a contractor
- 10 June : Lightning cause a compensator BEQ1 stop



SPS

- 13, 14, 16,17 18 June stops for SPS compensator 1

Problem of temperature in the reactor

- High outside temperature
- No pulse
- EDF voltage high (412kV)

- Solutions

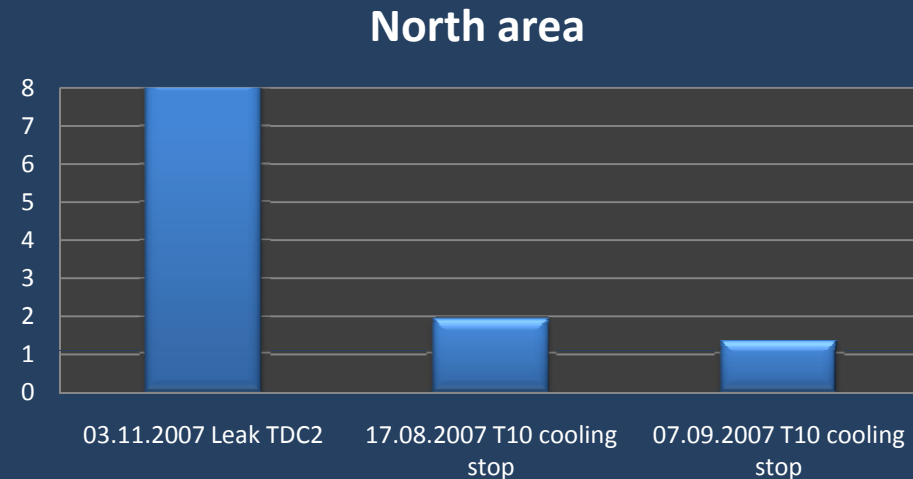
- Cleaning of the heat exchanger
- Procedure (increased supervision)
- New compensator for 2008, compensator 1 will be used as back-up n+1

SPS

- 2 July : cable fault on the SPS pulsed loop between BA6 and 7.
 - Loop opened for the rest of the run. Repair was not successful
 - New cables to be installed expected before SPS startup
- 3 July : connection broken on the filter H17 compensator 1
- 8 and 19 August : compensator 1 stopped because of unbalanced current in the by-pass resistances
- 15 October and 9 November : Faults on cable between BE and BA1 (SMB1)
 - First repair on the T
 - Second on the phase R
 - Reparation expected end of March 2008

North Area

- 3 November : leak on a magnet stopped the cooling for TDC2 and TCC2
- 17 August and 7 September : problem on the flow switch which protects the pump
 - threshold was changed
 - flow switch by-passed (risky)



CNGS

- 12 September : AUG hit by a user by mistake
- From the 9 to the 20 October : problem with the control of the ventilation system.
 - 9/10 : 2 units stopped in TSG4 and no information on 2 other units → 1st modification : autoreset system
 - 12/10: 1 unit stopped and no information on 2 other units → 2nd modification : Most important points connected by wire
 - 20/10: Problem appeared on units in TCV4. Not able to switch the system into access mode → CNGS stopped for 2007 → new project

Conclusion

SPS compensators :

- ✓ in 2007 no backup compensator
- ✓ in 2008 SVC2 and SVC3 in service, BEQ1 backup only n+1

SPS Cables :

- ✓ consolidation is ongoing → improvement in the future

Isolde :

- ✓ solution implemented during this shutdown should reduce radioactive gas release

CNGS :

- ✓ new installation adequate to the environment