# ITS Cooling activities update

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# SDD/SSD cooling failures

1st June: PT100 electrical connection failure (Temp Chiller water In&Out)

1) it required an access to the cavern to be fixed

2) access given on 3rd June: problem solved

Precautionary measures: check all the electrical connections during TS2

- The cooling plant must be switched off for half a day

11th June: differential circuit breaker switched off because of high condensation in the electrical cabinet (heaters relay). The problem was originated by high chilled water flow

1) it required two accesses to the cavern to be fixed (11th and 12th June)

Precautionary measures: install a thermostatic valve to regulate the chilled water flow

- This installation can be done during TS2 without stopping the plant

# SSD cooling issues

- Ladder switched off due to high temperature alarm. Neighboring ladder temperature increasing observed. Differential pressure increased during last 6 months.
- Comparing the working parameters of 2009 with the one of 2012 we noticed a general increase of the impedance in all loops (dirty?)
- SSD S1 and S2 supply pressure swap observed in the DCS panel
- Check if the swap is only in the DCS code (Grazia will look at it but in future a dedicated SSD DCS expert is needed) or at the level of the PLC and fix it.
- Test to be performed during next TS (manual ramp proposed by Ton)

# Plans for TS2

**SPD**

1) sub-cooling test

**SDD/SSD**

1) thermostatic valve installation
2) check electrical connections (cooling plant must be off)
3) SDD Pressure sensor loop 43 CL electrical connection check (PP4)
4) SSD pressure swap test

No RP needed

# LS1 plans: SPD

**SPD**:

1. Replace palette pumps with magnetic gear pumps (tbc)
   - Long duration test being set up

2. Remove the new inlet pipes
3. Recover the old inlet pipes (cleaning, gas tests and connection)
4. PP4 remove the sub-cooling (tbc after sub-cooling test during TS2)
5. Cooling rack mechanical consolidation
6. Counter-flow cleaning (btw PP4 and PP1)
7. Install chilled water filter (tbc)
8. Check safety valves
9. Recalibrate T and p sensors (PP4 and PP1)

The schedule of interventions n. 2, 3 and 4 also depends on the availability of the technicians from INFN Padua

# LS1 plans: SDD and SSD

**SDD**

1. Install chilled water filter (tbc)
2. Vacuum pump under UPS (tbc)
3. Replace 10 pressure and Temp sensors
4. Replace 5 pressure regulators
5. Counter flow cleaning (tbc)
6. Replace plastic pipes with SS pipes (tbd)

**SSD**:

1. Install chilled water filter (tbc)
2. Vacuum pump under UPS (tbc)
3. Counter flow cleaning (tbc)
4. Check safety valves
5. Install a thermostatic valve (remotely controlled) to regulate the temp of the loops water (tbd)
6. Corrosion test on 1 pipe

# Other activities
## (and their impact on services)

- EN-EL: 66vK and 18kV consolidation
  - Lots of equipment off for 8w
- CV maintenance and upgrade:
  - P2 cooling towers unavailable from August to mid October 2013
  - No demineralized water 3 months (May-August)
  - Cooling maintenance from June to September 2013
  - Chilled water upgrade: 1-2w no water (2013)
- UPS upgrade:
  - Technical solution under discussion. Most probably 4-6 m unavailability of UPS (DAQ, DCS, cooling plant…)
- New outlets for redundancy of Ethernet cables