



Activities on cooling system

Claudio Bortolin



SDD/SSD cooling maintenance



- pump: replaced
- outlet filter: replaced
- demineralized cartridge: replaced
- mechanic filter on air control: replaced
- SSD chilled water valve: replaced (it was leaking)
- safety valve on the tank: replaced
- alarm security test: done
- upload new program PLC (ramp of p regulator SSD): done
- temperature sensors loop 17 & 18: replaced

Finished



SPD cooling maintenance



- pump replaced
- dehydrator cartridge replaced
- inlet mechanic 1um filter replaced
- chilled water valve replaced (leak on the top)
- one of compressor was replaced
- some safety valves were recalibrated and installed (10 bar pump valve and 8,5 bar in the inlet manifold, 3,5 bar tank valves): done
- 10 safety valves on the loops (return side) replaced: more reliable
- test security alarm: done
- UPS integration: **done**

Finished



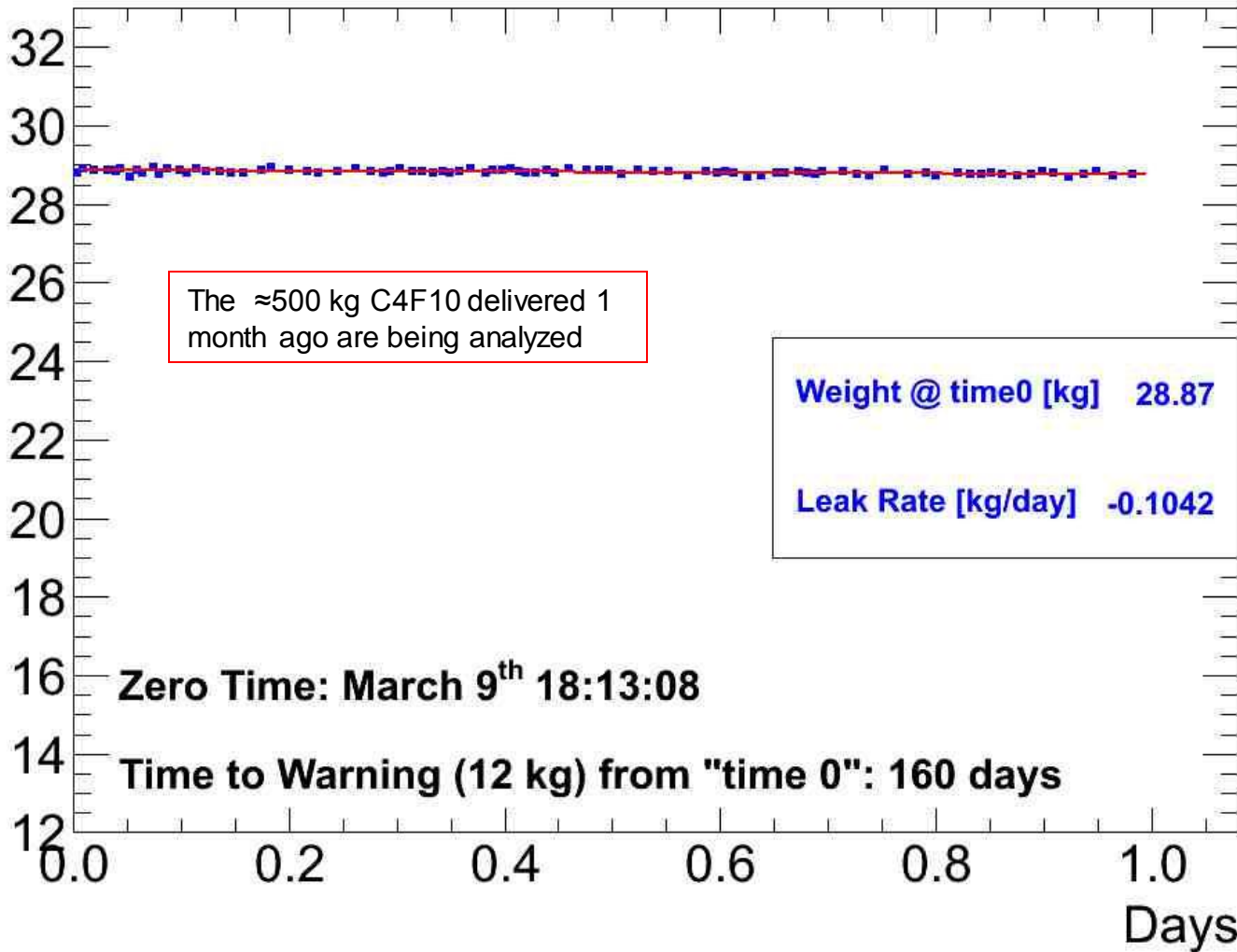
SPD tank weight



ICE
RT

freon weight trend

Weight [kg]





PLC failure this morning



11:30 am - The cooling plant went in alarm and the detector was switched off

The EN-CV colleagues found out that the problem was due to the PLC memory card that failed (reason unknown)

2:00 pm the card has been replaced, the PLC and cooling plant have been restarted

The flow rates in the drilled sectors didn't change, there are some small losses in sectors 3,4 and 5 as expected

SPD will be switched on again tomorrow morning early



SDD/SSD CILK project responsability



The CILK PVSS project (version 3.8) was developed by Marco Boccioli (ALICE DCS until end of 2009)

In April 2010 the ALICE central DCS passed this task on to each detector

Since then the CILK project was used but not updated

Recently I was asked to take care of the CILK project. I met Marco Boccioli to discuss the basic requirements of the project

The PLC programs were generated using S7 UNICOS by Stefan Lueders



SDD/SSD CILK project



An alarm is still not acknowledged (SDD): to be fix only when the plant is switched off:
S. Berry masked the alarm on the level of the plant PLC

Interlock Status 6:27:03 PM 3/10/2011

0/0 Unack.

Current selection: Widget Snapshot

573 device(s) found

Front-End	application	device type
ALICE_SDD_CILK	ALICE_SDD_CILK	Alarm

<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SDD_UX_AL_LOOP41	SDD_UX_AL_LOOP42	SDD_UX_AL_LOOP43	SDD_UX_AL_LOOP44	SDD_UX_AL_LOOP45	SDD_UX_AL_COOLSTBY	SDD_UX_AL_HV30	SDD_UX_AL_LV30M
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SDD_UX_AL_LV30C	SDD_UX_AL_HV31	SDD_UX_AL_LV31A	SDD_UX_AL_LV31C	SDD_UX_AL_HV32	SDD_UX_AL_LV32A	SDD_UX_AL_LV32C	SDD_UX_AL_HV32E
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SDD_UX_AL_LV33A	SDD_UX_AL_LV33C	SDD_UX_AL_HV34	SDD_UX_AL_LV34A	SDD_UX_AL_LV34C	SDD_UX_AL_HV35	SDD_UX_AL_LV35A	SDD_UX_AL_LV35C
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SDD_UX_AL_HV36	SDD_UX_AL_LV36A	SDD_UX_AL_LV36C	SDD_UX_AL_HV40	SDD_UX_AL_LV40A	SDD_UX_AL_LV40C	SDD_UX_AL_HV41	SDD_UX_AL_LV41M
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SDD_UX_AL_LV41C	SDD_UX_AL_HV42	SDD_UX_AL_LV42A	SDD_UX_AL_LV42C	SDD_UX_AL_HV43	SDD_UX_AL_LV43A	SDD_UX_AL_LV43C	SDD_UX_AL_HV44I
<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
SDD_UX_AL_LV44A	SDD_UX_AL_LV44C	SDD_UX_AL_HV45	SDD_UX_AL_LV45A	SDD_UX_AL_LV45C			

This alarm appeared after IP address on the PLCs was changed the few weeks ago



Conclusions



- The maintenance of the plants is over: thanks to the EN-CV colleagues for their co-operation
- The leak rate of the SPD cooling plant is not negligible: to be monitored during next weeks
- CILK project: I had a first meeting with Marco Boccioli; the logic of the PLC program can be improved (during LS1?)
- Alarm on SDD cooling not acknowledged. To be done as soon as the plant can be switched off