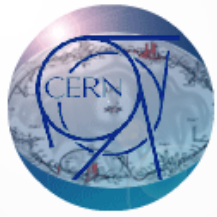


SPD Cooling Status

CLAUDIO BORTOLIN

Università di Udine / INFN – PD / CERN

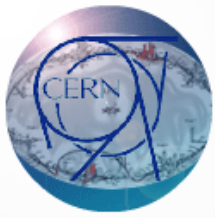


Evolution of the performance



- October 2008 → 106 HSs ON
14 HSs OFF (13 due to cooling, 1 disconnected)
- August 2009 → 85 HSs ON
35 HSs OFF (32 due to cooling, 3 due to other issues)
- October 2009 → 100 HSs ON and stable
20 HSs OFF (17 due to cooling, 3 other issues)
- February 2010 → 108 HSs ON and stable (Best result!)
12 HSs OFF (10 due to cooling, 2 due to other issues)
- 28 April 2010 → 96 HSs ON
24 HSs OFF (22 due to cooling, 2 due to other issues)

A test bench is being built in DSF

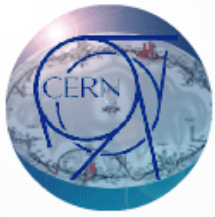


Flow problem



	Temp Side C	Temp Side A	Heaters	Press Side C	Press Side A	Flow
0	8.98	11.86	97.37	3.42	1.75	2.22
1	10.94	10.93	101.72	3.61	1.72	1.93
2	11.23	11.59	97.58	3.48	1.73	2.16
3	12.22	19.32	106.40	4.32	1.66	1.16
4	10.30	11.57	95.12	4.06	1.74	1.78
5	8.66	14.15	86.48	4.54	1.68	1.41
6	11.28	17.38	106.59	4.86	1.66	0.95
7	13.87	20.64	103.06	4.96	1.65	0.64
8	10.00	10.95	101.72	4.22	1.72	1.95
9	11.61	18.31	104.59	4.81	1.64	0.62

- Actual Cooling plant settings: $P_{liq}=5.5$ bar & $P_{gas}=1.65$ bar
- Liquid Pressure regulated line by line



Leak problem

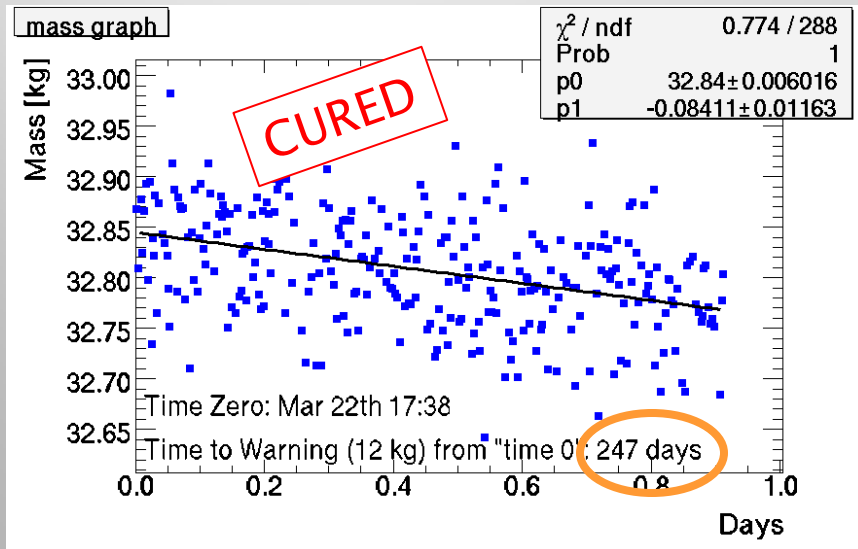


For the most part the leak was due to a faulty connection of one of the liquid pumps which was installed during the previous access (March 2010)

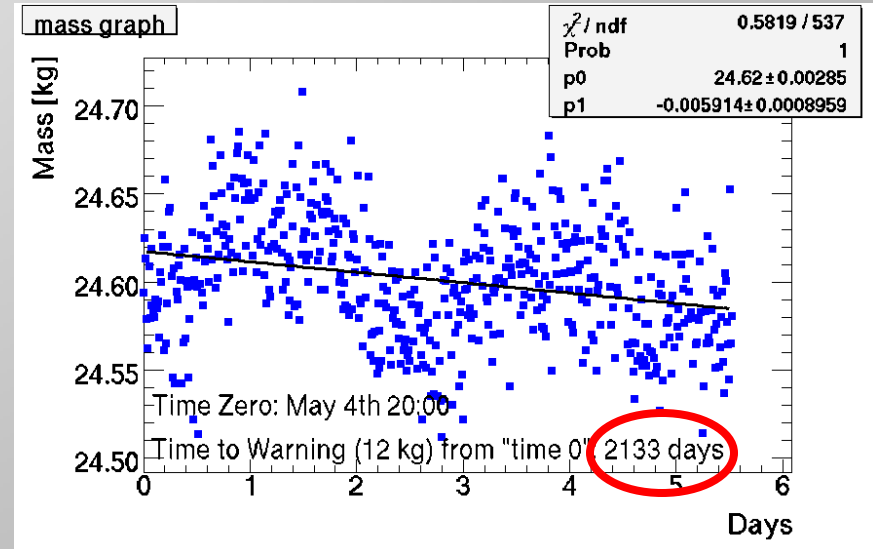
The leak was big enough to be seen by a freon sniffer.

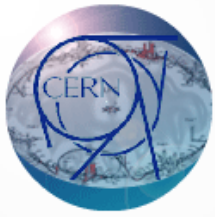
Current leak rate < 6g/day (it means > 5 years lifetime before a warning occurs)

Before the last access



After the last access





Future plans



- At present no further action is foreseen on the plant or the whole installation
- Reproduce the behaviour of the system (regime of the fluid) using a high-end simulation software for fluids and thermal exchange
- Build a test bench in DSF to reproduce the behaviour of the system in a controlled environment with full control of the parameters and total record of the fluid properties along the path (simulation cross check)
- We are considering to use a probe to inspect the filters in PP3
- End 2010 shutdown: cut and re-install liquid side pipes once the door is closed (same path). Permanent re-routing postponed to the longer shutdown (end 2011)