SPD Cooling Status

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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

<table>
<thead>
<tr>
<th></th>
<th>Temp Side C</th>
<th>Temp Side A</th>
<th>Heaters</th>
<th>Press Side C</th>
<th>Press Side A</th>
<th>Flow</th>
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</table>

- 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).