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[SHARK-NIR] Cryostat alarms and procedures

1 message

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Dear all,

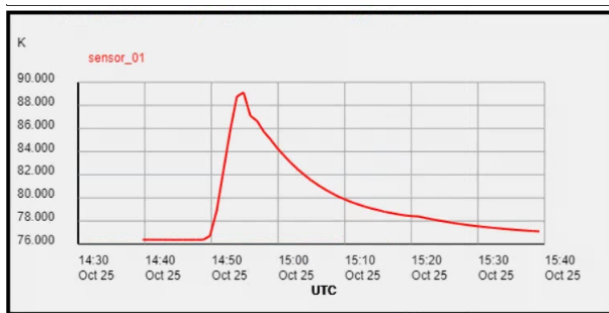
in the last few days there have been some issues in the refilling of the cryostat.

One issue has been found yesterday by Elliot and was an ice plug in the outer vessel pipes, now resolved, but to be careful it might happen again.

One is probably due to long distance and different height of Ln2 tank and our dewar, making the refilling process very long (around 60 minutes, while it was about 15 mins in the Lab) and that will be investigated in the future.

Furthermore, it seems that in the first minutes of refill some air is injected in the system, having it warming up pretty fast. You can see here the screenshot of what happened today.

This sensor 1 is the detector one and a fast warming up of the detector in such a short time is highly risky, so this should be monitored.



Given that the alarm system through EPICS (that is active since yesterday) has a refresh rate of 1 min and is not very easily readable, we have given to Elliott yesterday the link to monitor the temperatures in realtime during refill. It is a webpage LBTI style (so you might be familiar with it), as it was developed by Paul Grenz, who is SHARK-NIR SCICAM SW responsible as well. I put it here as well.

http://sashaws.shark-nir.lbto.org:8080/indi_sensors.html?sharknir_logger,sharknir_temp,sharknir_pres1

you need to tick the checkbox near sensor 1 and then click 1 hour (or best suitable timeframe) to monitor the detector temperature. We are going to have sensors renamed now that it has a broader than just internal use, but meanwhile sensor1: Detector, sensor 2: Cold finger, sensor 3: Inner vessel, Sensor 4: Outer vessel

Concerning procedures, there are a couple of things which should be known by everyone:

- temperature variation on the detector cannot be faster than 3 K/min.

- if detector temperature are higher than 110K when starting the refill (or if something strange happens during the refill making it overcome those temperatures), as a first thing, the knob must be inserted, it must be opened (3 turns is safe for any possible starting temperature, but please monitor the speed rate for a few mins) and after cooling down is completed (or if monitored, when cooling down rate is slow enough) it needs to be closed again and then disengaged.

For any further information I attach you a document containing procedures on the usage, cooldown etc of the cryostat.
Most infos are not needed for LBT use but can be of help in case of doubts.

And we will of course be available for any further clarifications.

Thanks to everyone!

Maria

PS: please forward this email to other people if needed

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SHARK-NIR-SO-MAN-001_Issue0.4_Cryostat_Procedures.pdf

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