Report from EATM

Experimental Areas Technical Meeting

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Tuesday, 7.11.2017

COMPASS TB meeting

88th - 90th EATM.

Dates & other news:

- distilled and raw water stop: 20.12.2017 to 12.03.2018
- chilled water stop: 19.12.2017 to 9.03.2018

- new cooling in power converter building now operational, temporary cooling units removed
- SM2 tests: 27.11.2017 to 1.12.2017

- North area consolidation: gas detection to be upgraded during LS2 - no flammable gas in 2019?

SM2 power converter.

Issues related to the new SM2 magnet power converter

▶ polarity switch problem:
due to cabling in the main circuit breaker, fixed now

▶ errors in September:
water pressure sensor alarm caused by vibrations, was
preliminary fixed by short-circuiting the interlock,
long-term fix this winter: installation of a silent block

▶ replacement of the electronics card to allow up to 4800A:
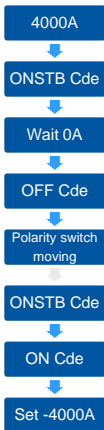will be tested end of the month

Extra slides

➤ SM2 power converter slides

1. Polarity switch problem

The polarity switch was not moving without a FGC local Reset by First Line team.

Sequence of the polarity changing:

2 ways to put the 18kV MCB OFF:

4000A

↓

ONSTB Cde

↓

Wait 0A

↓

OFF Cde ⬅ The 18kV Circuit Breaker was not opening when the power converter was sending the OFF command

↓

Polarity switch moving

↓

ONSTB Cde

↓

ON Cde

↓

Set -4000A

OFF cde ➡

PC Fault ➡

This fault occurred after updating the Analog interlock card of the RegFGC3 crate.
Before the update, a PC fault was sent to the MCB at each polarity change.
After the update no PC fault was sent to the MCB and the OFF command didn't work.

After investigation with EN-EL, we found a bad cabling of the OFF command within the MCB cubicle. Everything was repaired and tested.

2. Internal interlock problem (1/2)

The power converter tripped randomly with MCB Wrong Status Fault

26/09 05H05 First trip: MCB Wrong Status Fault

Strange behaviour founded:
The safe chain was opening during $500 \mu s$ without any fault memorized
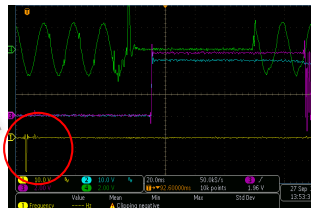
26/09: Investigations all the day.
A lot of things were changed: 18kV circuit breaker, electronic cards,…

29/09 01H00:
The problem came back, but this time with a COOLING FAULT fault recorded

This glitch was due to an transient opening of the water pressure sensor of the filter chokes.

This contact opening was caused by the strong vibrations of the chokes.
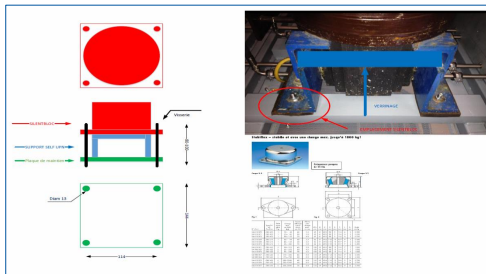

Choke 3000A

2. Internal interlock problem (2/2)

Temporary solution:

Short circuit of the water pressure contact on the chokes
In case of demineralized water missing, the thermocontact installed on the choke protect it against over temperature.

Solutions that will be implemented this YETS:

1. Installation of specific Silent Bloc underneath the two coils to decrease the vibrations of the power converter.

2. Improvement of the glitch detection by the Analog card of the Reg FGC3 crate.