Working on a drill

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Tools

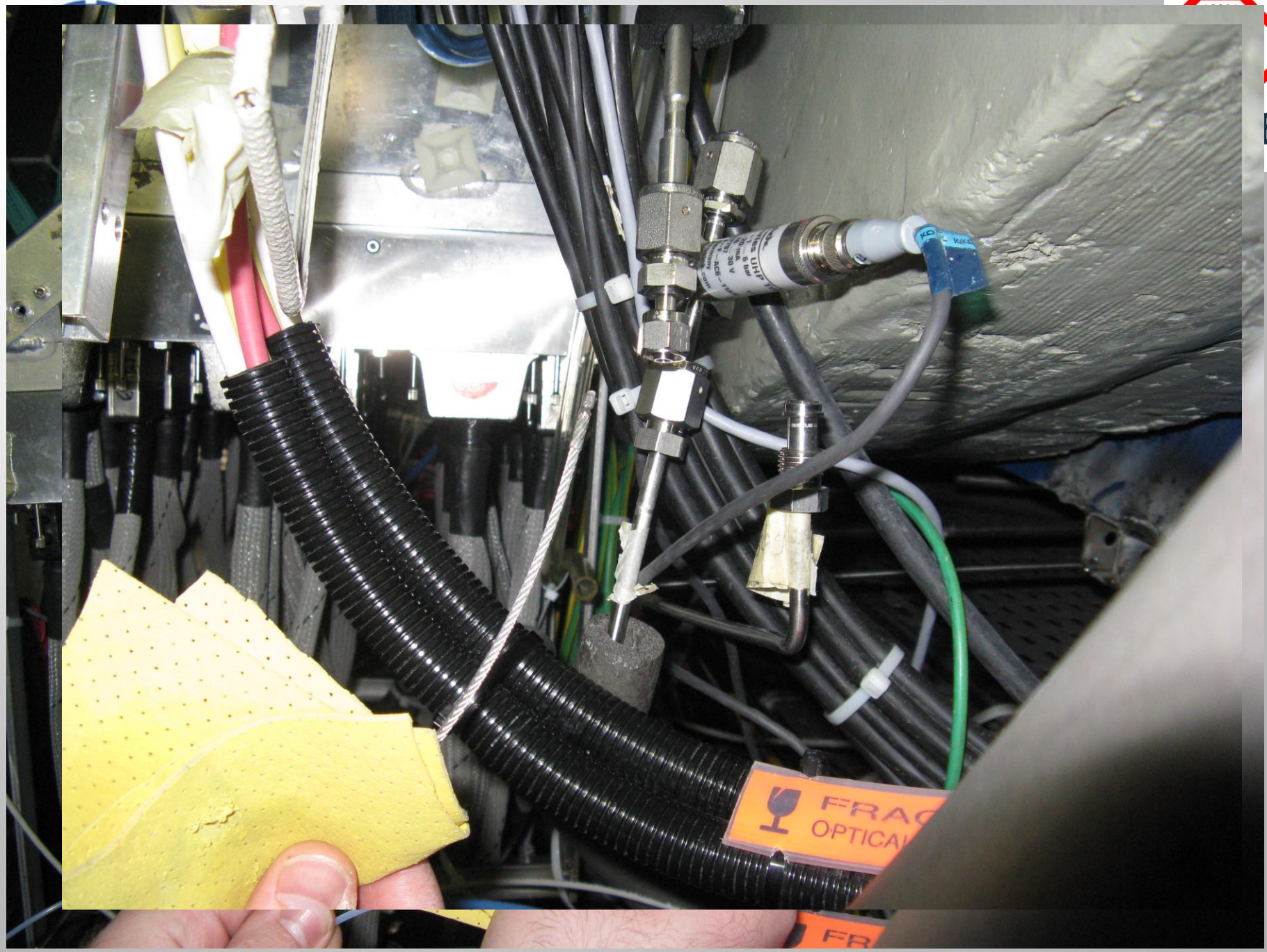
- Drilling:
  - tungsten carbide tip welded on twisted ss cable
  - drill to operate the rotation
  - counter-flow at 200 mbar w/manometer to detect the presence of the hole

- Cleaning:
  - rilsan pipe connected to a rotary vane vacuum pump
  - magnet tip on twisted ss cable
  - cleaning machine to force counter-flow wise a cleaning fluid

Procedure

- Drilling:
  - the drill rotates the tool inside the pipe
  - pressure drop (~20-30 mbar) on a manometer with specific trend when hole is done

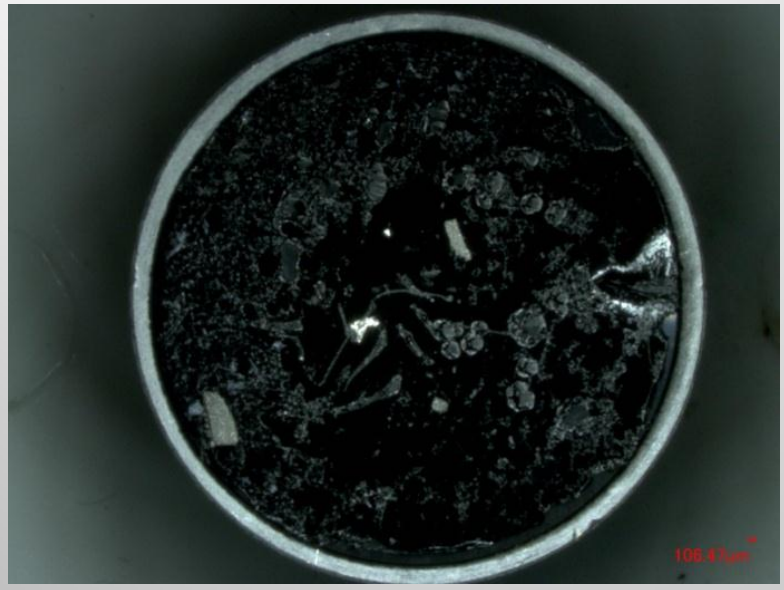
- Cleaning:
  1. suction of drilling remains with small pipe inside the stainless steel pipe (down to the filter) and vacuum pump
  2. ''walk'' with magnet inside the pipe
     - the steel of the filter is slightly magnetic
  3. counter-flow with C_6F_{14} for 30' @ 1.5 bar
  4. pipe drying with Ar flow @ 1.5 bar
  5. repeat 1-4 4 more times (5 cycles total)
  6. last counter-flow with fluid lasts 12 h


FRAG
OPTICAL

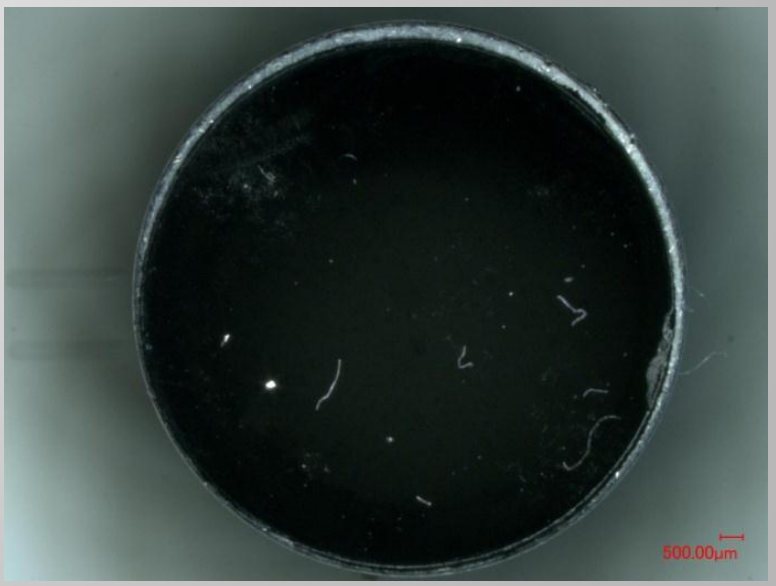
SEM analyses: before and after the cleaning

Particles collected

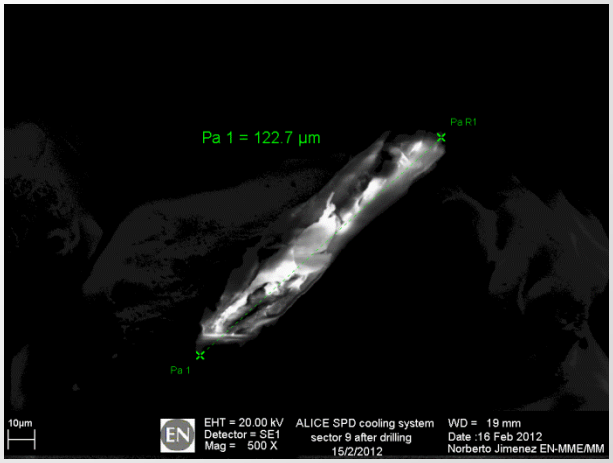
before…

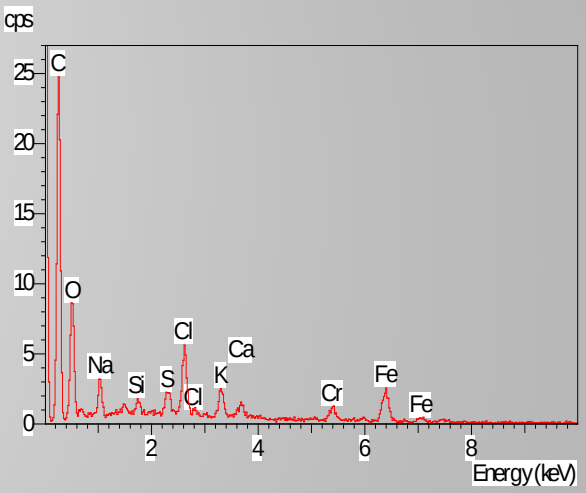


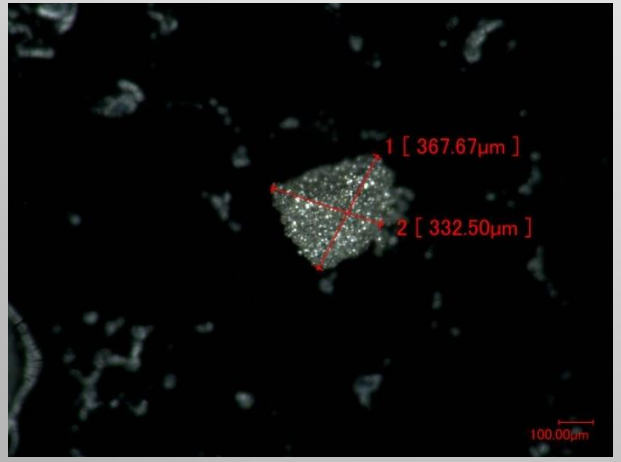
…and after cleaning!

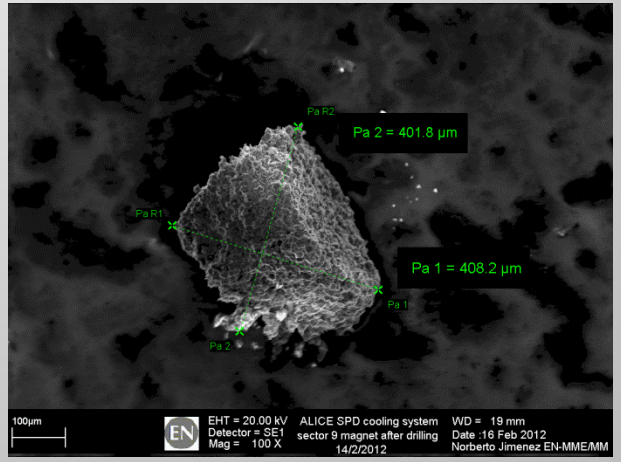


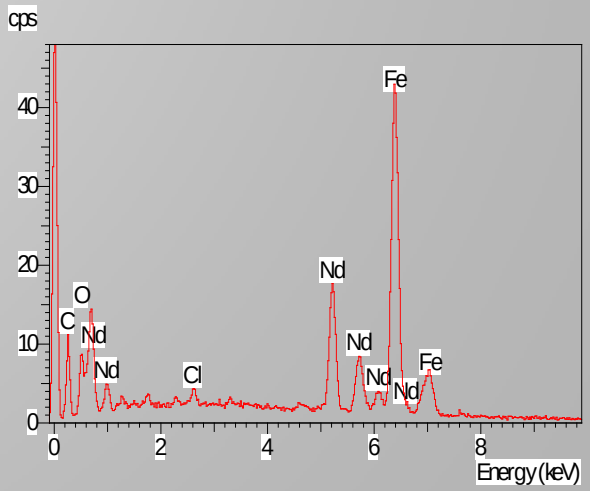
SEM analyses: Most particles are carbon and iron











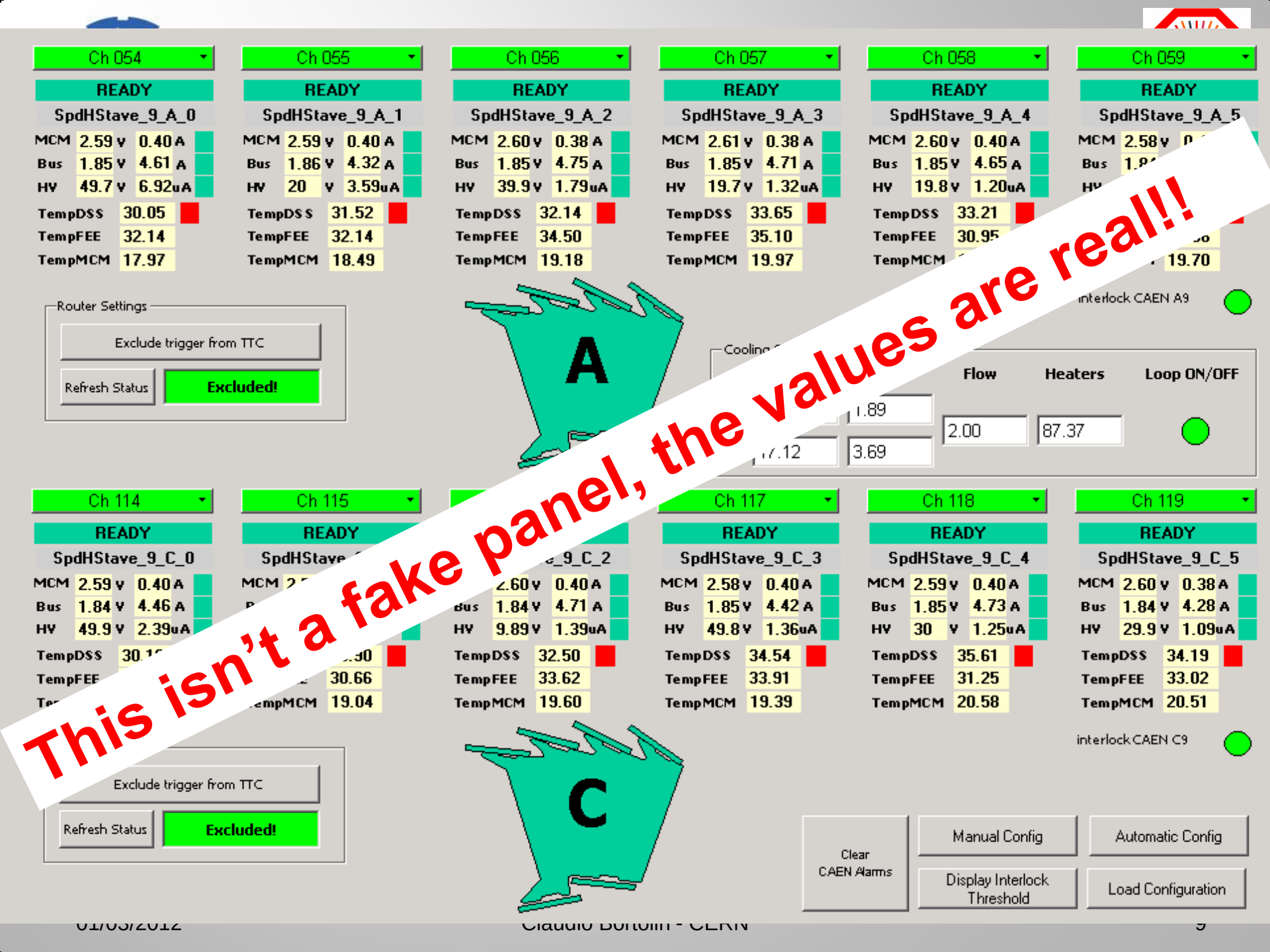
Sector 9 drilling procedure and results

- It never worked properly (max result: 6 HSs ON beginning of 2008)
  - vacuum cleaning + 3 magnet sweeps + vacuum cleaning + counterflow
  - last counterflow left running overnight
  - flow: from 0.27 to 0.46 g/s

- Drilling: Wed 15 Feb morning
- Cleaning: 5 cycles (overnight counter-flow between cycle 3 and 4)
- Results:

Flow=2.0 g/s at 4,5 bar (was: 0,27 g/s at 6,3 bar)

Modules on= 100% (was: 0%)



This isn't a fake panel, the values are real!!

Next steps

Sector 7

- The filter was drilled last Monday morning.
- Cleaning is ongoing
- We expect to restart loop/sector this afternoon: waiting for SEM results
- Other sectors will be drilled according to the results of sector 7
- Drilling schedule to be decided soon (Technical stops time table)

SDD/SSD cooling maintenance

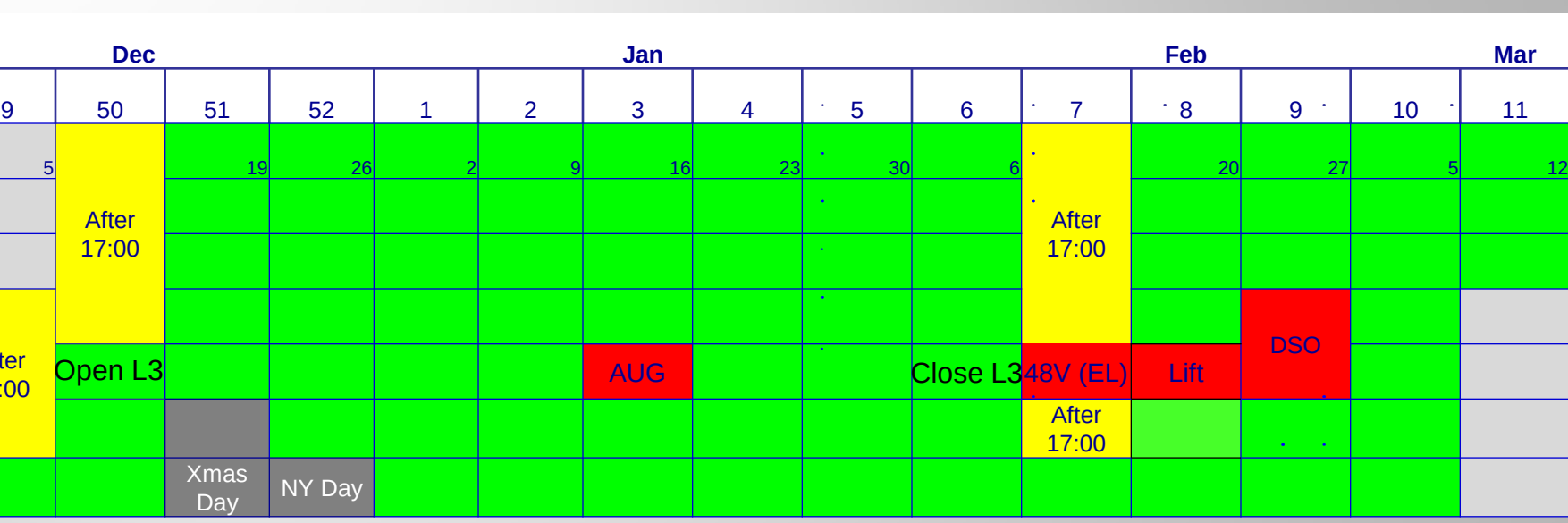
- pump: replaced
- outlet filter: **replaced**
- demineralized cartridge: replaced
- mechanic filter on air control: replaced
- SSD chilled water valve: replaced (it was leaking)
- safety valve on the tank: replaced
- alarm security test: done
- upload new program PLC (ramp of p regulator SSD): **done**
- 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
- test security alarm: **to be done**
- BPRs installation: **Postponed to 2013**

UX25 access restrictions



Access restrictions:

Removal/installation of shielding (restriction includes RB24 triplets)

- **PX24 blocks: no access CR5 and UX25**
- **PX24 beams (35t): no access CR1-5, Expo, and UX-25**
- **All other blocks: no access to UX-25 (or 1-2 teams max, not on A-side)**

TRD insertion: no access to MNF and L3

AUG test (*Arrêt Urgence General* – General Emergency Stop) – no access UX25

DSO test (Department Safety Officer) – no access UX25

No access SX2 during manipulation of blocks in SX2 (except ACR and WRs)

Legend

No access (except transport)
Access possible
No access