

Leak test update

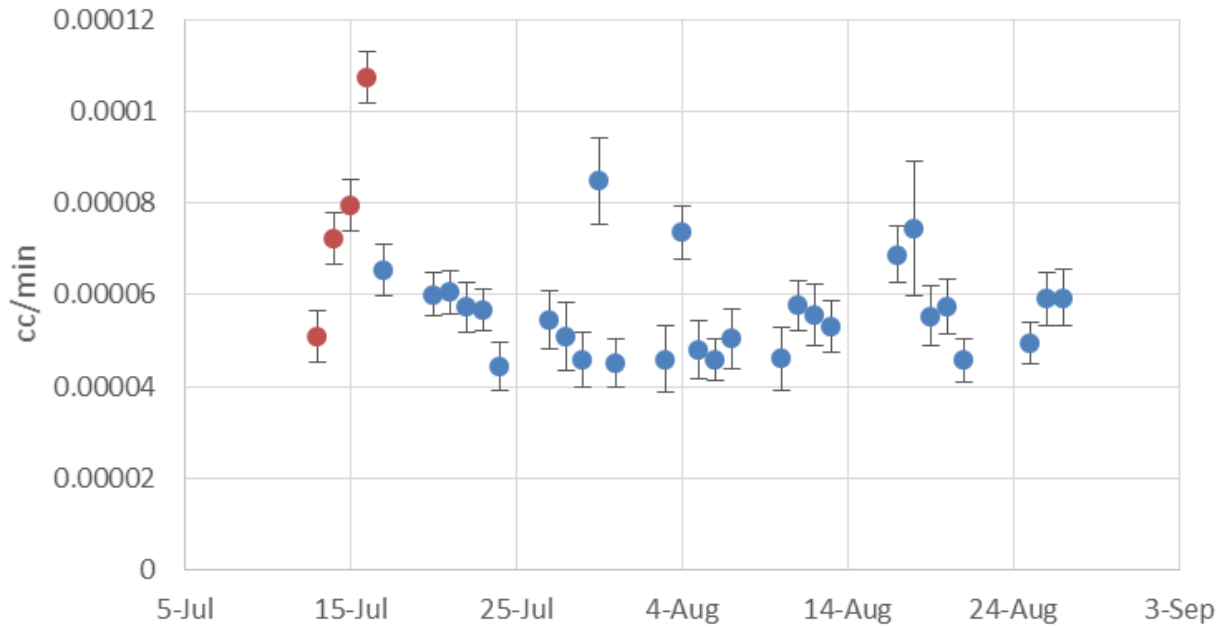
University of Minnesota

Yan Ke

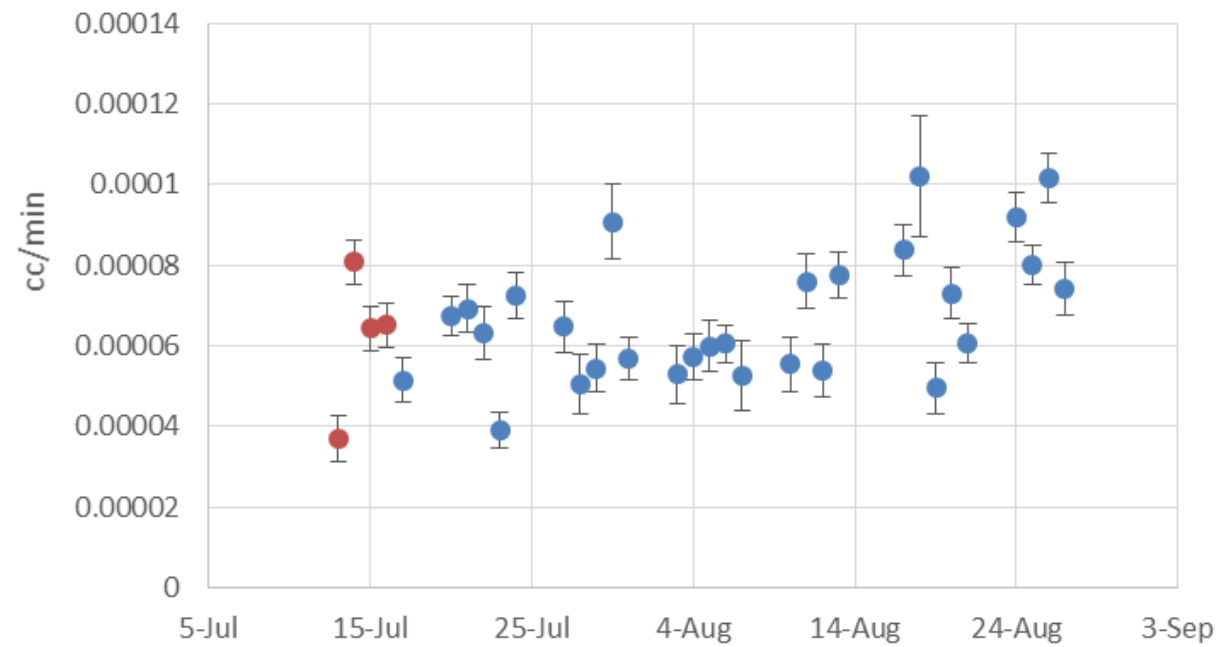
Aug 28th 2015

Consistency test (flush with N₂)

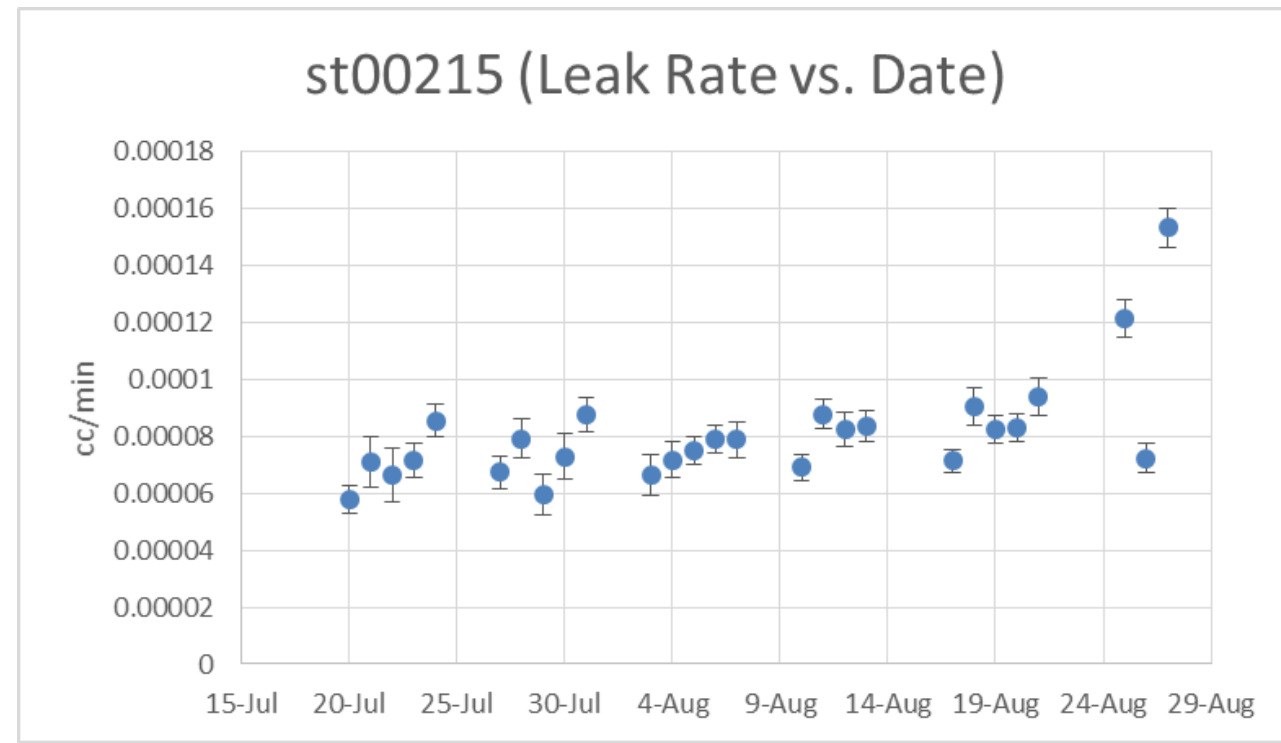
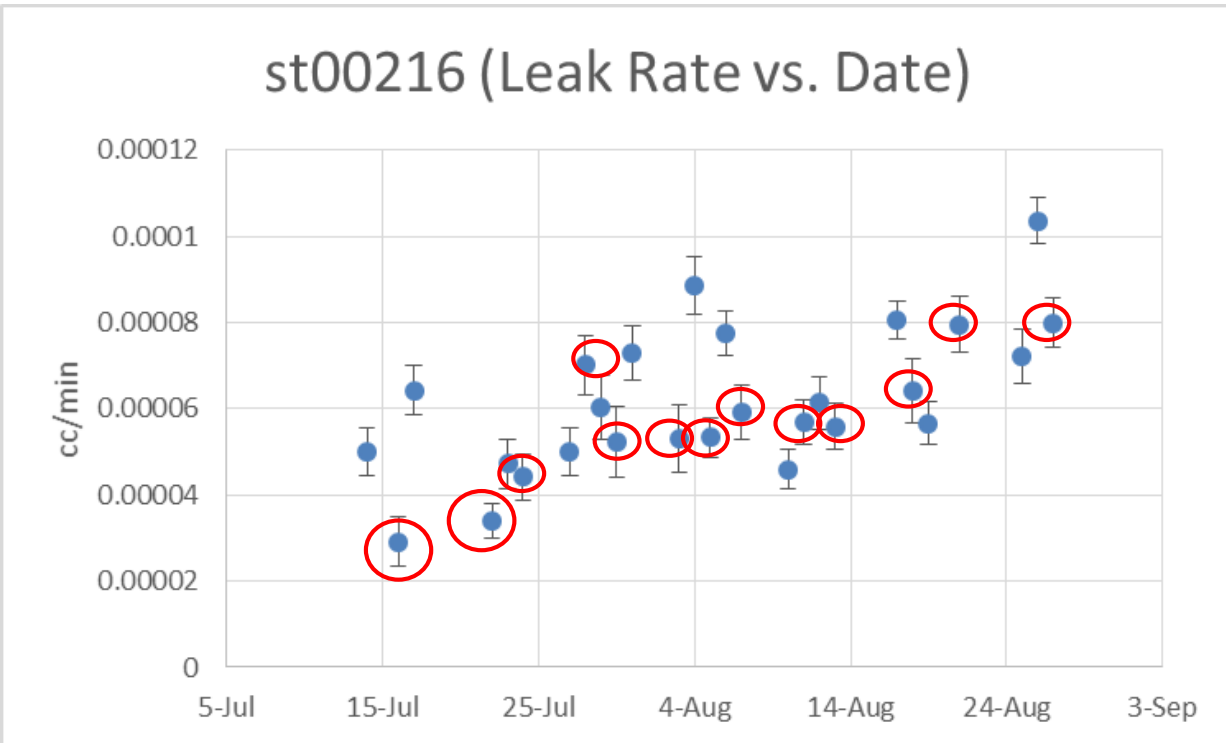
st00219 (Leak Rate vs. Date)



st00217 (Leak Rate vs. Date)



Consistency test result (replace viton)



The increase of the leak rate might be caused by the worn viton.
Will use new viton next week.

Apparatus update

- The oscillation problem is caused by the fan. There has to be a nut between the fan and the G10 plate to let the air goes in to the back of the fan.
- Previously ch#3 need 40 mins to become steady after injected 0.5 ml CO₂. Now it only need less than 1 min.

A guess on the kink

- The kink maybe caused by the rusted copper inside the chamber. When the chamber was left open overnight, there will be chemical reaction between CO_2 and CuO . When tested straws the next morning, CuO release CO_2 which cause a step input of CO_2 . Then the kink happens.
- Test: Switched boxes between #1 and #3(the one has most of the kink) and left ch#3 open ch#1 closed with N_2 overnight.

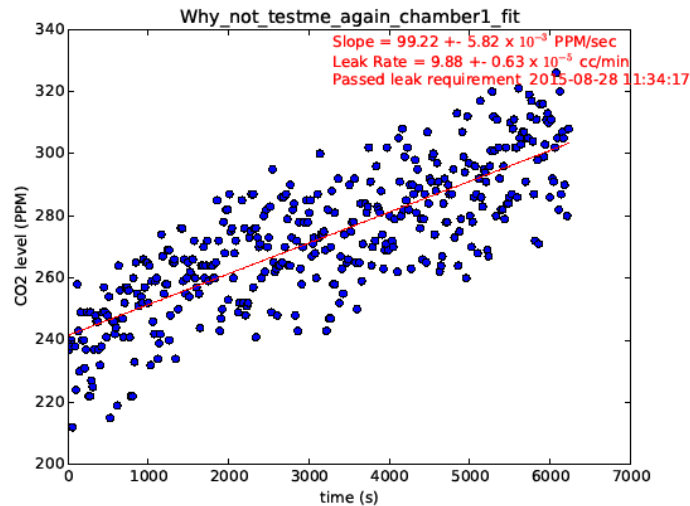


Figure1: The test for #1 box
ch#3 on next morning

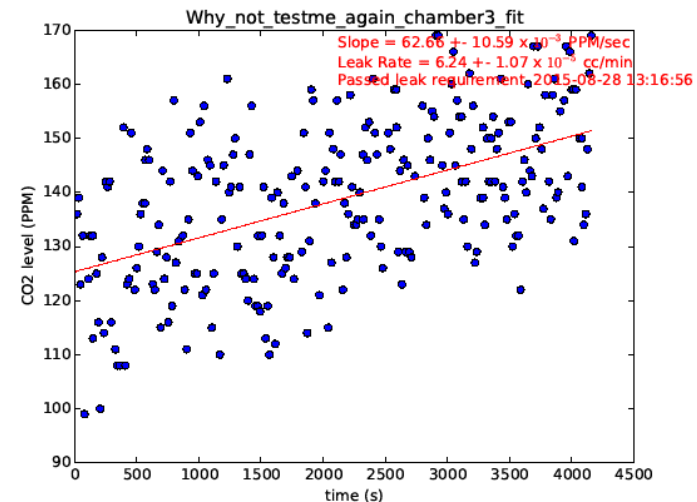
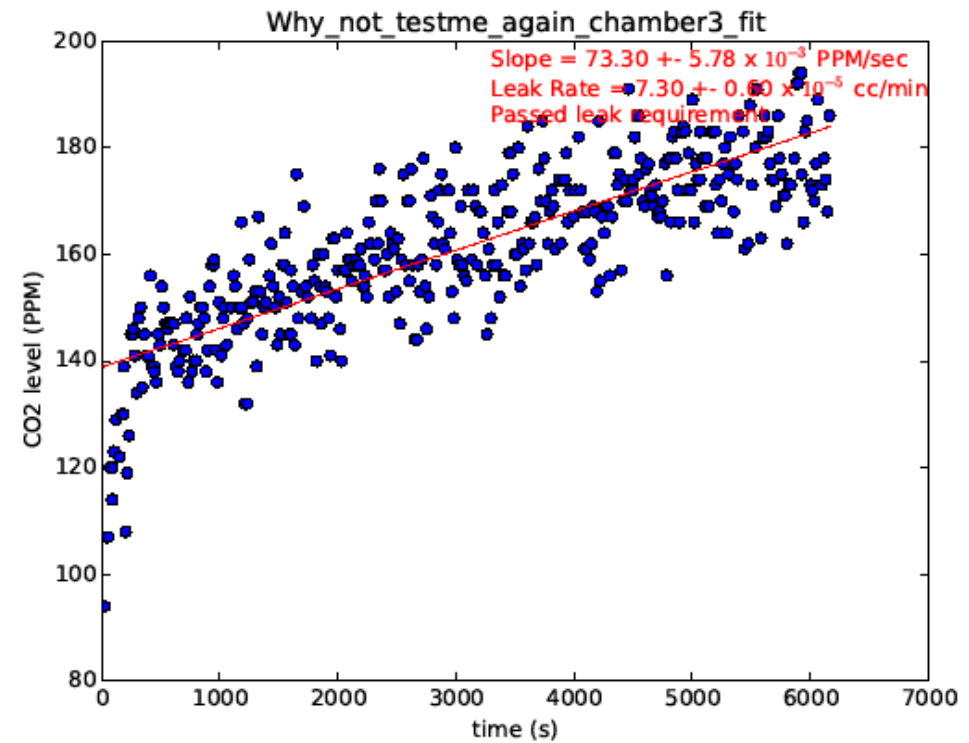
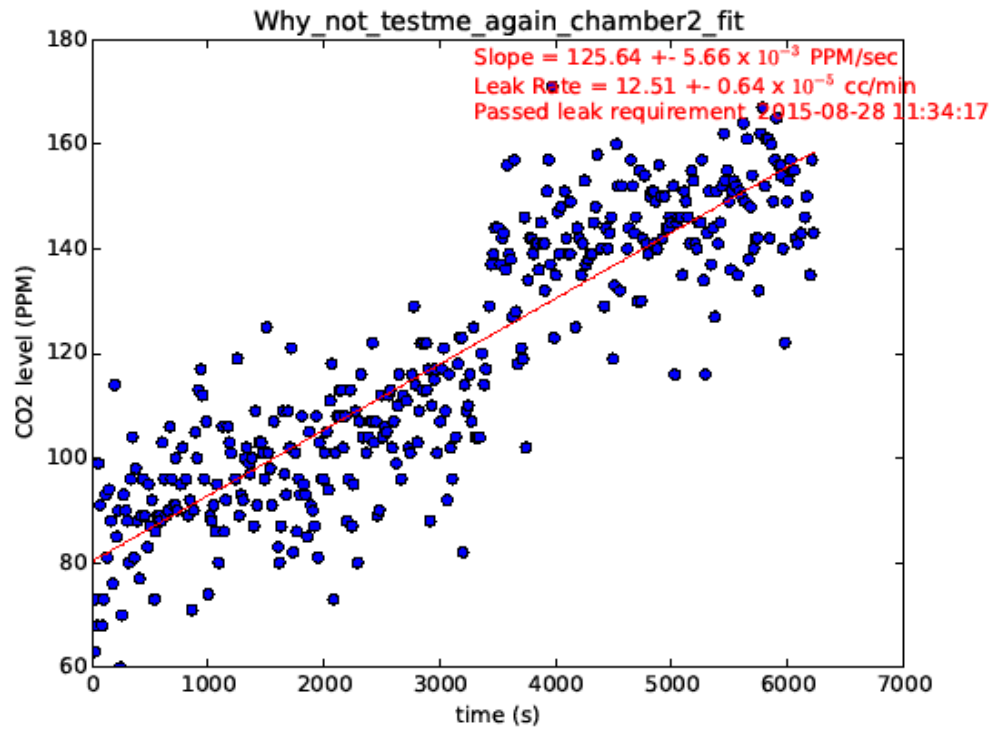


Figure2: The test for #3 box
ch#1 on next morning

Jump in ppm value



- Maybe the figure on the right is not a kink. It's also a jump?
- Jump seems to be around 30ppm.