

CeC status

22022022

February 22, 2022

SRF Gun Cathode Transfer System Repair Schedule

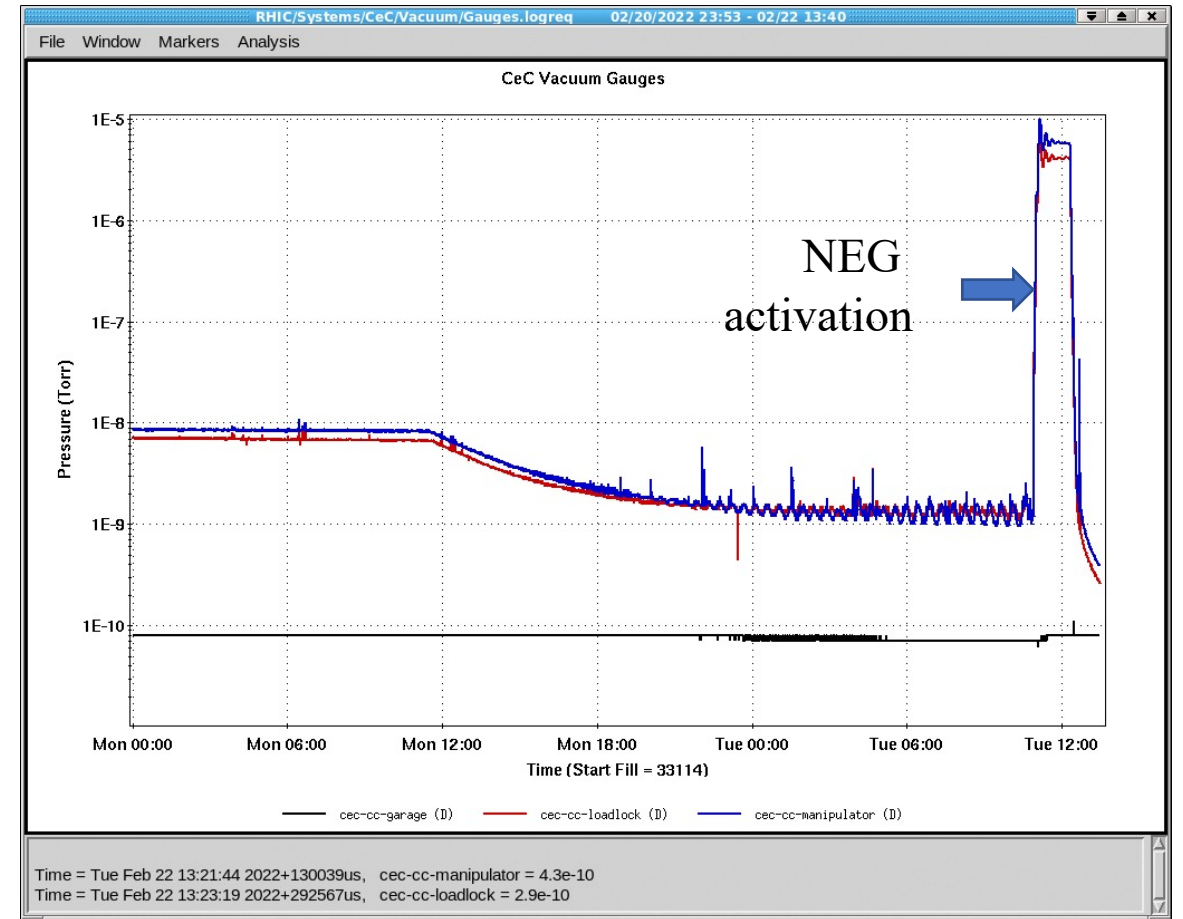
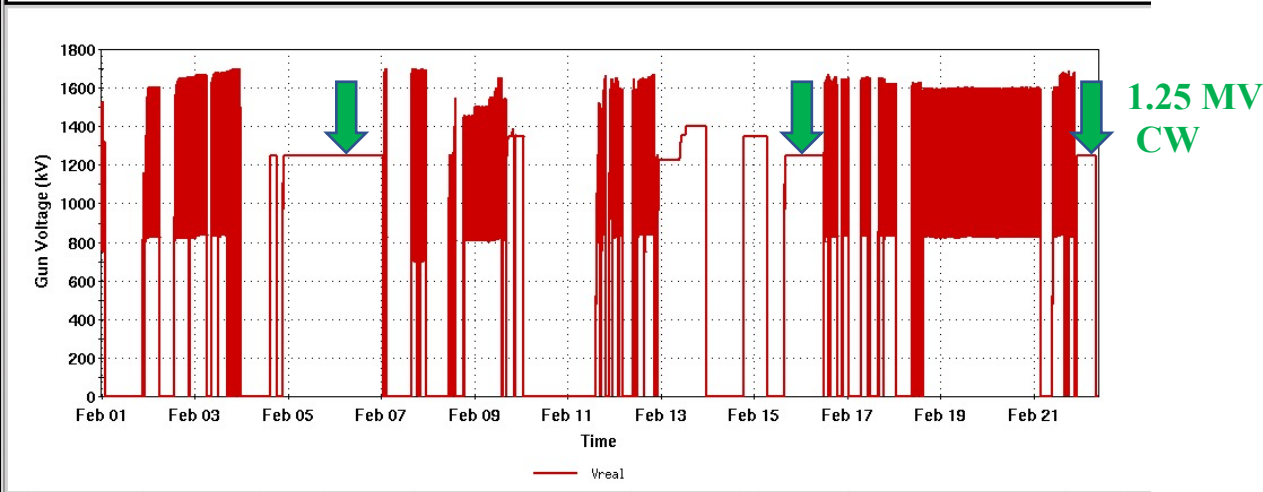
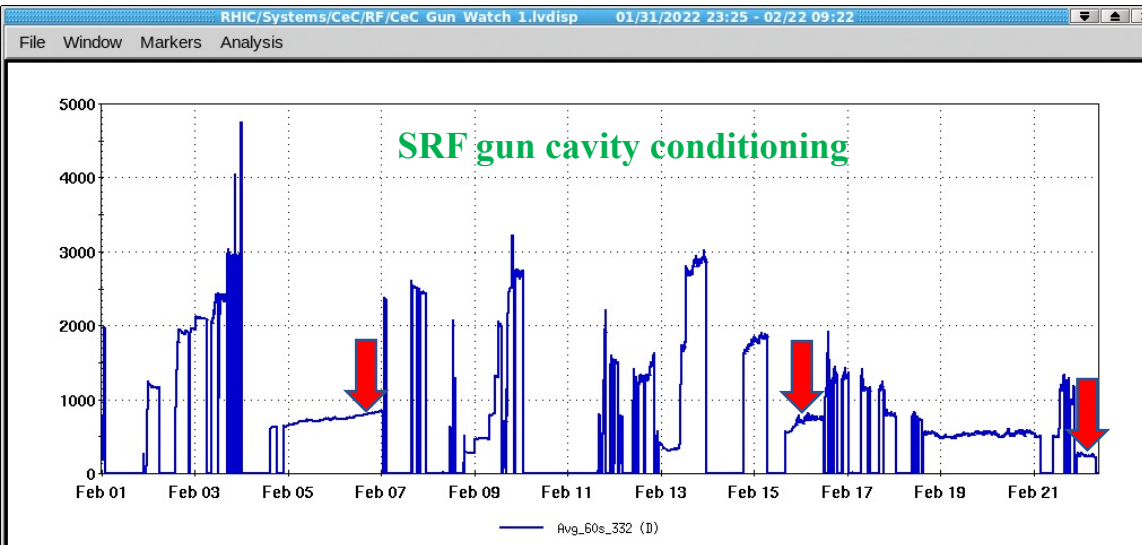
February 2022

S	M	T	W	T	F	S
30	31	1	2	3	4	5
6	7	8	9	10	11	12
13	14	15	16	17	18	19
20	21	22	23	24	25	26
27	28	1	2	3	4	5
6	7	8	9	10	11	12

- ~~▪ 02/02 Clean room preparation~~
- ~~▪ 02/04 Morning, removal of H manipulator~~
- ~~_____ Delivery to VTF cleanroom — measuring table?~~
- ~~_____ Afternoon, inspection of H manipulator to understand~~
- ~~_____ mechanism and prepare for following week activities~~
- ~~▪ 02/07–02/11 Survey start preparation of equipment for cleanroom~~
- ~~▪ 02/08–02/09 Repair of new end effector (SBU)~~
- ~~_____ delivery of end effector to vacuum group to start cleaning process~~
- ~~▪ 02/10 Cleaning and installation of end effector~~
- ~~▪ 02/11 Survey of H manipulator~~
- ~~▪ 02/14 & 02/15 Request of long maintenance day 16hrs? Two full days~~
- ~~_____ Installation of H manipulator assembly~~
- ~~_____ Vent / mounting to port aligner close vacuum~~
- ~~_____ bake out preparation~~
- ~~▪ 02/15–02/17 Bake out of manipulator and ramp down~~
- ~~▪ 02/22 Short access to end bake out and activate NEG~~
- 02/23 Ip2 access 8 hrs to install and survey transfer system. Install new cathode

Status

- During repair of cathode transfer system, we had three weeks of SRF gun cavity condition. It now is excellent shape – with X-ray radiation level 2-x lower that at the beginning of Run 22
- Vacuum is recovering well (now in mod-10 range)
- Tomorrow, we have 8 hrs to establish “trouble-free” process of transferring photocathodes from the “garage” into the SRF gun



Access to IP2: Wednesday, February 23

8:00 – 16:00

- Draft:

1. Unwrap the system, vacuum check-ups
2. Open the valves to the gun (both front and back), lock the bolts (observing the stalk)
3. **Pre-align cathode manipulator (need to decide today where?),** vacuum check-ups
4. Set two laptops, camera/theodolite and illuminations
5. Transfer blank puck onto the cross and turn it 45-degrees and use it as a mirror to see inside the stalk
6. Observe the insides of the stalk using both the camera/theodolite with goal to eliminate presence of broken RF fingers on the cathode path
7. Transfer blank puck onto the long arm, check puck position relative to the centers of the three windows and entrance to the narrow portion of the stalk
8. Use gun cathode camera and vacuum monitoring to slowly transferring the puck through
9. Decide is additional alignment is needed? If yes, repeat the process, till it is successful (no interferences, no vacuum spikes,....)
10. When successful, return the blank puck into the garage and install real cathode

Next steps

- Restore CeC accelerator operations (~ 1 week, parallel to pp RHIC collision)
- Establish high gain Plasma-Cascade Amplifier ($\sim 1-2$ weeks, parallel to pp RHIC collision)
- Establish interaction with 26.5 GeV/u ion beam (~ 1 week, ~ 2 days of dedicated time)
- Start attempts to observe CeC cooling of 26.5 GeV ion beam (till the end of the Run)