UITF, what’s the plan?

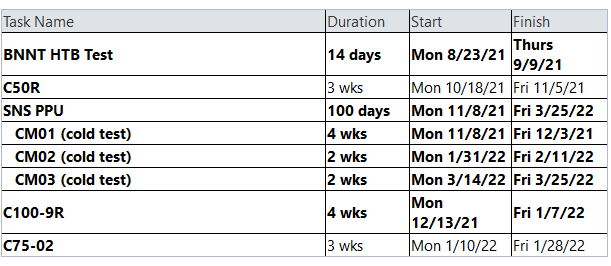
8/4/2021 (Poelker/McCaughan)

Before the end of the calendar year, we would like to:

1. Provide 100 nA beam through a thin vacuum window, to demonstrate decomposition of 1,4-dioxane in wastewater
   1. Need to follow prescribed commissioning plan that includes radiation shielding check out, BLM checkout, BCM checkout and fast valve checkout, ~ 1 week
   2. Optics measurements, ~ 1 week
   3. At least ~ 1 week of irradiation studies
2. Continue to study the “booster” aka QCM. (Past studies indicate the booster is “good”, but would like more results, we could easily chew up a month of time)
   1. Yan to compare beam deflection and x/y coupling, booster and 1/4CM (mostly done but now we have better viewer downstream of booster, so want to repeat)
   2. Optics studies - Emittance measurements and “back propagation” method using qsUtility to compare measurement and simulation, and to estimate energy spread. Plus GPT simulation: compare predicted beam size to beam size measured at viewers, harps
   3. Energy spread vs off-crest operation, buncher amplitude
   4. Minimum gun voltage to make acceptable MeV beam
   5. Bunchlength studies – aka, yao time of flight studies
   6. Stability studies: microphonics, jitter, LLRF3.0 development?

Recognizing that:

1. CEBAF takes priority, labor resources in demand, UITF is “best effort”
2. CMTF schedule is busy
3. Cool down, warm up, cool down, warm up, etc., does this take a toll?



What needs to happen to perform the water irradiation measurements?

Hot Check Out:

* Cool down the booster
* I&C stuff:  viewers, video only channel, BPMs, harp at M703
* new valve
* test the fast valve
* steering magnets reconfigured, moved from elevated line
* PEPPo solenoid
* UED updated with proper naming convention
* Gun happy at 180 kV
* Photocathode fabricated
* laser aligned
* Stack lead brick at FCup3 and FCup4
* Re-attach water lines FCup3, re-cable other items in this area

Commissioning:

* Deliver VL MeV beam to spectrometer, set energy
* Deliver VL MeV beam to FCup4
* Work with RadCon to validate shielding for 100 nA CW beam
* Work with SSG to check out BLM function along new beamline
* Setup Chopper
* Set buncher amplitude using spectrum analyzer on Brock cavity
* Xi Li: optics measurements, with Chopper ON/OFF
* Set raster amplitude
* Dose water