

# RaDIATE BNL BLIP Irradiation Run Planning VC Meeting 10

## 02.16.17

### Present

FRIB: Frederique Pellemoine

CERN: Elvis Fornasiere

BNL: Leonard Mausner, Dmitri Medvedev, Nick Simos

KEK: Taku Ishida

ESS: Yongjoong Lee

FNAL: Patrick Hurh, Kavin Ammigan

RAL: Chris Densham

PNNL: Dave Senior

### Notes

- BLIP operation update
  - Thorium run prior to RaDIATE irradiation run will be with 160 MeV protons. Expect possibly 1 day delay to tune energy back up to 180 MeV.
  - Irradiation start date now ~ Feb. 28<sup>th</sup>
- Safety committee review feedback
  - Main concern is the dose rate from the heavy capsule during the capsule exchange after two weeks. Dose rates are much higher than allowable limit for the operator (even after 24 hour of cooling, dose rate exceeds limit).
    - Nick investigating ways to reduce dose rate exposure to operator
      - Add 3" lead shielding in front of operator
    - Worst case scenario is to consider reducing the irradiation time for the heavy capsule. Will try our best to avoid this.
  - Need to identify shipping container to transport specimens at the end of the irradiation and cool-down. Irradiation run cannot start without providing this information to the committee.
    - Patrick has identified Type A containers at ORNL, which they are willing to lend for shipment.
      - Container bore is 6" diameter and several feet tall, with 3" lead on the sides and 2.5" lead on the top and bottom. Design was retested in 2016 – so high chance that the container meets the new documentation standards.
      - Waiting on drawings and documents from ORNL.
- FNAL capsule update
  - All capsules and specimens are ready. BNL PO is in place with EB industries, and now waiting to schedule welding work. Vacuum degrader designs and fabrication have also been finalized. Possible welding dates at the end of next week (Feb. 22 – 24).

- KEK will try to ship their Gr-9 specimens in time to include in both US and DS Ti capsules. Delivery to FNAL expected on Feb. 20-21.
- CERN capsule update
  - Heavy capsule is already welded and leak tested. All satisfactory.
  - Si capsule has been welded and is currently being leak tested.
  - Earliest possible shipment of capsules from CERN to BNL is tomorrow, but most likely next Monday. Expect delivery by the end of next week.
- Potential delaying of start of irradiation by a couple of weeks
  - This is possible but will come at a cost to RaDIATE due to re-tuning the beam from 117 MeV to 180 MeV. Re-tuning and conditioning may take around 8 hours.
  - Current plan is to continue planning for Feb 28<sup>th</sup> start date, unless delay is caused by late receipt of CERN capsules, issues with welding FNAL capsules and with assembly of capsules in target box.
  - Next Thorium run currently scheduled for the 3<sup>rd</sup> week of April. Too late to delay our experiment if we want to avoid beam re-tuning cost.