

## Radiation

## Safety Minutes of BLIP RSC Target Review Subcommittee Dec. 9, 2015

## Committee

### Subject: RbCl Targets for Raster Beam

**Present:** C. Cutler, L. Mausner, C. Cullen, E. Lessard, D. Medvedev, D. Beavis, P. Pile, and C. Schaefer

The committee discussed the RbCl targets that will be irradiated with the raster system that has been installed. The canning record was updated after the meeting and is posted as canning record<sup>1</sup> tgt\_16\_01.

The canning record was found complete and requested updates have been added.

**The irradiation of the target with the raster system was approved.**

### Discussion

The submitted canning record had a liquid Ga target at the back. However, this target is not planned for the initial operations. A new record was submitted with the intended Cu stop after the second RbCl target. The present plans call for the target array given in the canning record to be used as the check-off template for verification of targets during the insertion of the targets into the irradiation basket. The final coordination of this process is being completed by QA.

The thermal analysis was added to the updated canning record. It demonstrates that the maximum power density is approximately 2.5 times lower in the target with the raster system compared to the target with no raster that was tested at the end of last year. The transverse dimension of the heat distribution is much larger than the thickness of the target. Heat flows predominately in the direction transverse to the target plane. Therefore, the simple comparison is sufficient to ensure that the target with the raster should perform better than the target without the raster.

The target has void space of 20% to allow for the expansion of the RbCl when it melts. A larger volume of the target is expected to melt with the raster system. In the past RbCl targets had about 8% void space to accommodate the melting. The beam current limit was increased to 150 micro-amperes. The Department does not have the software to calculate the target changes due to the melting. An outside engineering company has been contracted to perform the calculation.

The residual activity calculated was sufficient to estimate of personnel dose and transport on site. Assays will be conducted for waste disposal purposes before disposal.

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<sup>1</sup> MIRP-CAD, "[Irradiation of RbCl Targets with Rastered Beam at 140 micro-amperes to Produce Sr-82](#)",

The program is expected to startup with previously used targets for tuning purposes and measuring the beam profile. Several days of beam operations will occur for commissioning the beam raster system and to allow the new transport system to outgas.