

Memo

Date: July 15, 2015
To: RSC, Ben-Zvi, D. Kayran, W. Xu, P. Bergh, and P. Sullivan (DOE)
From: D. Beavis 
Subject: ERL Operations for July 16

I have discussed the machine performance of the ERL with Dmitry and Wencan. The cathode quantum efficiency (QE) has dropped substantially over the last few weeks. Wencan estimates that it would not be possible to generate 50 W of beam at 1 MeV. The radiation levels measured by unshielded chipmunks in the cave were about 100 mrad/hr for 8 Watts of 0.85 MeV beam on the Faraday cup. This level is about a factor of three below the MCNPX estimate, but I am trying to remove any physical inconsistencies.

I believe a proper balance of safety and development of this R&D machine would be to allow them to operate to the beam dump without additional fault studies. The beam power should remain below 10 Watts. I will remove some of the shielding from one of the downstream internal chipmunks.

Paul B. has arranged to have an RCT on duty into the evening of July 16.

It may also be that the machine will run to the beam dump on additional days under these conditions.

When a cathode with higher QE is available then we should conduct fault studies with higher power such as 100 Watts but limited in time so as to not damage the machine. Once we can detect radiation on the several of the chipmunk we can begin to confirm the shielding calculations.