C-AD

Radiation

Safety Committee

Issued: May 25, 2007

Minutes of Radiation Safety Committee of May 21, 2007

Subject: Klystron Shielding and Commissioning

Present: D. Beavis, A. Etkin, P. Bergh, R. Karol, L. Ahrens, N. Kling, D. Phillips, B. van Kuik, A. Zaltsman, P. Cirnigliaro, and D. Kayran

The Shielding of the Klystron room was discussed with the emphasis on cracks and penetrations to keep dose rates and doses ALARA. Commissioning is expected to begin in July.

D. Phillips gave an overview of the layout and some specifics of the Klystron and its internal shielding. The committee discussed the previous TLD results from the factory test. Most of the TLDs above about 10 mrem were from locations such as the water pipes where weaknesses in the internal shield exist. The committee was not concerned about the small cracks at the floor or above head height and did not believe that overlapping these cracks with Pb was necessary. Radiation surveys will be conducted during initial testing to verify this conclusion.

The cracks and penetrations will be surveyed with open window detectors. The surveys will start at 50 keV and be conducted in 10 keV increments to the 92 keV operating level. Only the final survey needs to be complete and documented if there are no indications of leaks at lower energy. At higher energy the surveys will be conducted with and without RF. **(CK-fy-2007-ERL-511)**

Area around the shield including the upper floor will be roped off pending review of the surveys to minimize dose to personnel. **(CK-fy2007-erl-512)**

The larger penetrations will have shielding which should be the equivalent of 1/8 inch of Pb and require two bounces for x-rays to scatter out of the Klystron room. **(CK-fy2007-erl-513)**

It was noted that a chipmunk could be placed in the area if desired. The material of the chipmunk will reduce the x-rays in the ionization chamber by about 50% at 50 keV and 99% at 20 keV.

The Klystron will need to be operated under the rules for radiation generating devices in the SBMS subject area and be registered as an RGD until it becomes part of an operating accelerator. **(CK-fy-2007-erl-514)**

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Attendees