Collider-Accelerator Department

BROOKHAVEN NATIONAL LABORATORY

Building 911B – P.O. Box 5000
Upton, NY 11973-5000
Phone 631 344 7124
Fax 631 344 5568
beavis@bnl.gov
www.bnl.gov

managed by Brookhaven Science Associates
for the U.S. Department of Energy

Memo

date: *April 16, 2009*

to: *RSC*

from: *D. Beavis*

subject: *Missing ERL Item for Cavity Test*

There are several items that are in the final ERL configuration that may be missing for the 5 cell cavity test.

There are a couple sections of internal shielding (both concrete and Pb) that are not missing. These are intended to provided shielding from the high energy gamma rays that can be generated from losses of the 25 MeV electron beam.

Four feet of light concrete shielding will reduce the x-rays from the cavity to less than 4 mrem/hr for a fault condition that creates 2000 rads/hr at 1 meter from the cavity.

The barrier to prevent access on the west side of the shielding is missing. The main issue is the cryo ports (2) at 13 feet above the floor and cracks in the wall. A piece of shielding is missing from behind the cryo vent. The posting for personnel not to enter without an RCT should be sufficient for the test. An interlocking chipmunk is located near the ports. Maximum dose rate at the port exit is 21 rads/hr. Two additional ports exist to the west of the cryo ports. These are intended to be blocked in the final configuration. These two ports are expected to have smaller dose rates (about 0.5) than the cryo ports and should be protected by the chipmunk. They are also in the area that will be roped off and eventually fenced off.

The barriers and chipmunks should be sufficient to protect the trenches for the test.

The laser ports (2) could have a dose rate of 4 rads/hr. The shielding is not present. The 1 MW waveguide port is missing shielding and the dose rate could be 400 mrads/hr. There is a chipmunk outside the waveguide exit and these areas will be posted as no entry without an RCT.

CC:

ERL RSC file
D. Phillips
D. Kayran
I. Ben-Zvi