

RSC
(Memos to Chair)

BROOKHAVEN NATIONAL LABORATORY

Memorandum

Date: Tuesday 2 February 1993
To: J.W. Glenn
From: ^{RRC} K. Reece/^{ga} J. Alessi
Subject: BLIP pump house chipmunk.

Linac fault study measurements have been reviewed with the BLIP pump house chipmunk as a focus. This present chipmunk can serve to protect several areas while allowing adequate beam to be used for periods of Linac studies.

Two Linac fault studies (#'s 1 and 8) involve beam delivered to beamstops cooled by the BLIP pump house system. In FS#8, the beam is stopped in the Linac/HEBT high energy beamstop (NZ086) and in FS#1 the beam is stopped in the AGS/HEBT beamstops. The extrapolated full intensity ($4E14$ protons/second) levels are summarized below;

FS #	Location	measured	fault level
1	AGS/HEBT door	32 mrem/hr	2.8 Rem/hr
8	chipmunk	55 mrem/hr	2.0 Rem/hr
8	heat exchanger	750 mrem/hr	27.8 Rem/hr
8	D6 dump pipes	100 mrem/hr	3.7 Rem/hr

Although the three areas involved in these studies (BLIP pump house, Booster ring and AGS ring) are all classified as High Radiation Areas, the BLIP pump house chipmunk can be used to limit exposure to personnel in these areas as well as provide the necessary interlock function.

It is proposed to interlock this chipmunk at 200 mrem/hr and have it alarm at 10 mrem/hr. This would also prohibit the BLIP pump house from exceeding the 5 Rem/hr limit the area by interlocking when the heat exchanger is at 3 Rem/hr.

Other consequences of this change are as follows;

1. With the suggested interlock level, the maximum pulsed radiation fields at the above locations will be;

1. BLIP house chipmunk 200 mrem/hr
2. BLIP pump house heat exchanger 3.0 Rem/hr
3. Booster D6 dump pipes 400 mrem/hr
4. AGS/HEBT door 320 mrem/hr

1. There is no need of a chipmunk at the AGS/HEBT door.
2. The Booster D6 dump cooling water may be circulating with personnel in the Booster ring.
3. The remote control (in Bldg. 914) of the D6 dump water valve may be disabled.
4. The BLIP pump house door interlock function may not be necessary.
5. The OPM access procedure for the BLIP pump house must be re-written to reflect these changes.
6. The Linac will be able to use up to $4E13$ protons/second into either of these beamstops for studies.
7. The new LTB/HEBT beamstop (LTB beamstop #1) will also be cooled from this same system. Beam into this beamstop should be well under the nominal limit noted in item #6 above.

cc: ~~RSC~~ file
RSC chipmunk file
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MCR