

Thurs 1pm

2/4/93

Take door out 93-01

Memor  
Rec'd D.B.  
1/21/92

1/21/92  
4R/hr diff  
Full Fault  
on smy. DB

**Review of Interlocks for the  
BLIP Pump Room**

This written description was prepared by D. Beavis, and reviewed by J.W. Glenn and E.T. Lessard on January 21, 1992.

Motivation

Linac Fault Study No. 8 has shown that the full Linac beam of  $4 \times 10^{14}$  protons/sec into the water stop NZ086 can raise the activity in the pipe to levels of 55 rem/hour. This water stop is the closest to the BLIP Pump Room and is expected to produce the highest possible activity in the water pipes.

It has been requested by operations to design an appropriate interlock system which would allow access by the Water Group while the Linac is operating. The Water Group normally accesses the BLIP Pump Room for brief periods with a frequency of about once per day.

Areas

The area surrounding the BLIP Pump Room must be a radiation area. The measurements taken demonstrate that the presently defined area is sufficient.

The roof of the BLIP Pump Room should be posted as a high radiation area. No measurements were taken on the roof, but the roof has little material to act as a gamma shield and should be expected to reach several rem/hour for the maximum fault levels. Posting should be on all four walls. In addition, it may be possible to access the roof of the BLIP Pump Room from the Linac building roof. If so, appropriate barriers or posting should be placed on the Linac building roof. (The Linac Liaison Physicist/Engineer should work with H.P. to ensure that the appropriate postings and barriers are installed.)

The gate and inside areas should be posted as high radiation areas (this has been in place for some time).

### Interlocks

It is recommended that the following interlocks be introduced.

1. A microswitch be added to the door into the Pump Room (not the gate).
2. A reset station be located immediately outside the door. The reset will drop out if the door is opened and the key for the door should work the reset station.
3. The chipmunk inside be converted to an alarming and interlocking chipmunk and mounted on the wall above its present location so that it is visible from the gate.
4. The chipmunk will interlock (i.e., close) the LEPT II beam stop if the area is not reset and a level of 20 mrem/hour or greater is detected. This will prevent levels in the room from exceeding 500 mrem/hour when it is not reset.
5. The alarm level be set at 200 mrem/hour to warn that high levels exist in the Pump Room. This will alert operations that high levels exist in the BLIP Pump Room although it is not occupied. If levels are less than 200 mrem/hour on the chipmunk, then the highest levels in the room are below 5 rem/hour.

Note: This interlock method is a minor exception to the AGS RSC guidelines AGS OPM 9.1.11 Table II.

### Procedure

The Water Group, with assistance from appropriate operations personnel, should write a procedure for access which contains the following items.

1. No access if the chipmunk is in the red (20 mrem/hour).
2. Personnel should wear a chirping or alarming dosimeter.
3. Instructions to sweep, lock, and reset the inside door.
4. Instructions to sweep and lock the gate.
5. Instructions that the key for the door and gate should be restricted to an appropriate set of trained personnel.

It is noted that one key could be used to lock the gate, door, and the reset station.

These corrective actions will be tracked by Action Item 22 (copy attached) with J. Alessi acting as the AGS representative and K. Reece as the RSC representative. Thee actions should be completed by January 28, 1992.

A copy of the survey map is attached.

mvh  
Attachments

Copy to:  
RSC  
MCR  
Interlock Review File  
J. Alessi  
E. Dale  
V. LoDestro  
J. Tilley

# AGS RADIATION SAFETY COMMITTEE ACTION ITEM

NO.: Act- 022

DATE: 1/21/92

**ACTION:**

- (1) Install interlocks for BLIP Pump Room (BPR).
  - (2) Write formal access procedure for BPR.
  - (3) Post BPR roof.
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RSC REPRESENTATIVE: K. Reece

AGS REPRESENTATIVE: J. Alessi

REFERENCE: Interlock Review 1/21/92.

SCHEDULE: Complete by January 28, 1992, if possible.

AREA(S): BLIP Pump Room and its roof.

OPERATION MODE: Protons in Linac.

**STATUS:**

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