

Radiation

Safety Minutes of Radiation Safety Committee of May 1, 2008

Committee

Subject: Testing requirements for the Optical Turnstiles and other components of the Operator-less Controlled Access at NSRL

Present: D. Beavis, R. Karol, C. Pearson, J. Reich, and J. Sandberg

A sub-committee met to discuss the initial testing plans the optical turnstiles. The initial testing will be conducted in building 912 before the system is move to NSRL.

The following plan was developed:

- 1) The test will include both optical turnstiles.
- 2) The test will include the light curtain.
- 3) A scheme perhaps like a dry-cleaners clothes rack will move a silhouette of a person back and forth through the two turnstiles.
- 4) A computer will count the passes from each turnstile and the silhouette.
- 5) This will be conducted about 10,000 times
- 6) Computer data will be examined for miscounts and none are expected. The company has done this type of test over 250,000 times but has lost the data and cannot provide it.
- 7) After this portion is complete additional tests will be done to verify the speed a silhouette can pass through the turnstile and how closely two silhouettes can be placed before there is a counting issue.
- 8) Additional simple tests will be done with personnel trying to trick the system.

A goal of NO failures in 10,000 tries is expected for a single turnstile. Ignoring common mode failure this gives a counting failure of less than 10^{-8} . Common mode failures should make this number larger.

The turnstiles are supplemented with the light curtain which has a safety rating. J. Reich has provided literature to the subcommittee on the light curtain to review. Since these are used in industrial manufacturing facilities for safety and it is expected that review the by subcommittee will find it acceptable.

In addition the system is supplemented by the crash system. If there is an error in counting and the cave is attempted to be made ready for beam the warning system will give users time to pull the crash cord. The training will emphasize that they pull the cord in the warn system activates.

The RFID does not have a safety rating but these devices are used extensively in the commercial world to track packages, bridge tools (E-Z Pass for example), and security entrance applications. The signal can be blocked by the body. Two receivers are intended to be used in the installation with both requiring a signal. The users will be given a lanyard for proper placement of the RFID. If the light curtain is broken without one and only one RFID tag present the sweep will be lost.

The RFID is attached to the keys in the key trees. These keys switches are monitored by dual contacts on the back of the key switch by the two PASS divisions. Only in the Controlled Access can a trained and qualified person remove a key with the RFID tag attached via recognition by an iris scanner.

The opinion of RCD will be sought on whether they view this system as a key-tree system or part of the interlocks. This may affect if all parts of the system require redundancy.

CC: Present
RSC
RSC Minutes file
RSC NSRL file
A. Rusek