

Radiation

Safety

Committee

Minutes of Radiation Safety Committee of December 7, 2000

E955 in U-line

Present: L. Ahrens, D. Beavis, I-H. Chiang, W. Glenn, A. Etkin, A. Hanson, R. Karol, E. Lessard, R. Prigl, J. Scaduto, A. Stevens

Subject of this meeting was the Proton Radiography Experiment in U-line, former E933 and now E955, scheduled to run in January 2001 following the NASA experiment. The following facts were presented:

- The conceptual setup of the experiment has not changed. The only new element is a 4-jaw collimator located d/s of UQ16, approximately at the E933 diffuser location. The main purpose of this collimator is to cut the beam halo. The diffuser has been moved downstream by about 10 m. The object location is in the middle of the Neutrino blockhouse, about 1 m d/s of the old object location. The eight 8Q48 magnets of the 2-lens system for E933 were doubled up to build a short single lens with larger acceptance. The E955 setup ends with the image location about half way from the blockhouse to the UGE3 alcove.
- As in E933, collimators in the middle of the lens are used to enhance or cut off protons with large scattering angles, i.e. those that went through the thicker parts of an object. A new collimator magazine containing the E933 collimators will be used to allow remote exchange of collimators.
- The list of objects to be radiographed has been expanded and includes new materials like depleted Uranium and Beryllium with higher risk of contamination. The U-samples will be inside an Aluminum case during irradiations.
- A new key tree has been installed in Rectifier House #1 (FM797, now Bldg. 911H) near the E955 trailer to reduce access time to the experiment through gate UGE3 in controlled access mode. This modification to the security system was reviewed and approved by the RSC in the Oct 12, 2000 meeting. The new key tree is wired in series with the MCR key tree for UGE3. A palm reader in combination with a card reader will be connected to the key tree to allow use of key tree keys by registered users only.
- As for E933, a counter will be set up in MCR to count the integrated beam delivered to the users with an object in the beam, using the UXF3 current transformer. If the counter exceeds a limit specified by the Liaison Physicist in consultation with HP, the delivery of beam has to stop, HP has to survey the experiment for contamination/activation and the counter has to be reset. An initial limit of 10^{12} p is suggested.

The following items need to be reviewed or signed off before operation of the experiment:

- The W-line interlocks need to be tested prior to operation and the line down to the W beam dump needs to be swept and secured for the duration of the E955 run. **(CK-U-FY2001-185)**
- The 20 degree bend needs to be locked out for the duration of the E955 run. **(CK-U-FY2001-186)**
- The fence around the U-line berm needs to be locked, the appropriate posting to be reviewed by C. Schaeffer. **(CK-U-FY2001-187)**
- All chipmunks along U-line need to be checked and verified prior to E955 operation. **(CK-U-FY2001-188)**

- The U-line dump cap needs to be inspected before beam can be transported to the dump. **(CK-U-FY2001-189)**
- The wiring from the new key tree in Bldg. 911H needs to be redundant, with separate cables for the A- and B-division. **(CK-U-FY2001-190)**
- A question about radiation levels at the outside end of the service ports to the U-line tunnel (west side) was raised. It was not clear whether these levels are documented from previous fault studies. If such documentation is not available, fault studies have to be done prior to E955 operation to determine whether these ports have to be shielded. The area along the west side will be roped off and posted as controlled area unless review of faults studies determine this is not warranted. **(CK-U-FY2001-191)**
- For the E933 run in August 1999 a temporary procedure (AGS-TPL 99-16) was written that provided instructions for MCR operators and RCTs to deal with the special conditions during proton operations for E933 including remote control access procedures and U-line sweeps with classified objects present in the tunnel. An updated version of this procedure should be written, and MCR and RCT personnel has to be trained in this procedure prior to operation of E955. **(CK-U-FY2001-192)**
- The section of the U-line tunnel from the Image location to the U-line beam dump has to be cleared of all removable material that is not needed by the experiment prior to E955 operation. **(CK-U-FY2001-193)**
- An RWP has to be generated for transport of activated materials out of the U-line tunnel to the E955 trailer to minimize the chance for spread of contamination. Activated objects may be stored in the UGE3 alcove during operation. **(CK-U-FY2001-194)**
- J.S. asked for permission to remove a temporary gate near WD2. Permission for removal was granted subject to verification by the security group that this gate is not used by the PASS system. **(CK-U-FY2001-195)**
- The proton beam intensity will be limited by locking out three devices in the Linac LEBT section (see 27Apr99 note by Ahrens, Alessi and Brisco), as was done for E933. **(CK-U-FY2001-196)**