C-AD
Radiation
Safety
Committee

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Access control for NASA run in A3

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Motivation: The A1 primary cave and the A3 cave are in the process of substantial modifications to accommodate the moun-collider targetry tests. Logical changes to the access controls are needed to meet the needs of the two users and the physical changes to the area. A description of the area and the interlock logic was provided to the committee (see attachment 1).

The A1 primary cave was separated from the downstream A3 cave by a substantial shield wall. The new design has only a fence between these two areas. There is the possibility for substantial leakage of muons and neutrons from the A line dump into the new A3 area. In the past, access to the A3 cave was allowed because of the substantial shield wall between the A1 primary cave and the A3 cave. Access into the A1 primary cave has always required the beam to be off in the A line. The committee recommends that access to either cave require beam off in the A line**.(CK-A-FY2001)** The safety devices for the A3 area will no longer be A1D3 and A1D4 but the A target cave devices. The safety devices for the A1 primary cave will remain the same, i.e. the A target cave safety devices.

The proposed logic treats the A1 and A3 caves in a similar manner. The labyrinth to these areas has an outside gate, the A1 primary gate, and two interior gates, one for the A1 area and one for the A3 area. The logic allows the interior gate to the area for the user in operation to be open so that it does no impede convenient access to the experimental area. For example, during a NASA run the A1 gate will be open, the A3 gate reset, and the A1 primary gate reset. The A1 primary gate is the outside access gate to both areas. The interior door of the experimental area under use will be latched open in a reasonable fashion. The committee approved this new configuration. A new sweep procedure will be written and must include a check of the interior gate that is latched open to avoid operational confusion. **(CK-A-FY2001)** The method to latch the gate should be mechanically sound and have a tag to help avoid any confusion. There were some minor discrepancies in the interlock logic for the A1/A3 caves so the committee did not approve the presented logic sheet. A sub-committee will review the final version of the logic. **(CK-A-FY2001)**

New logic for the A3 cave into A clearance was presented. It was proposed that the SEB energy check be removed if possible for the A cave logic. This will be done if appropriate and in consultation with the liaison physicist for the A cave. It was also proposed that a maximum energy limit be inserted in the interlocks to the A3 line since the beam dump was designed for 25 GeV/c well below the maximum AGS energy. Beam energies higher than the design of 25 GeV/c could have low levels of muons penetrate out the back of the A3 beam dump. This interlock will be added in an appropriate location in the interlock logic. It was proposed to put current monitors on the diploes A3D5, A3D6, and A3D7 to prevent both steering the beam off the A3 beam dump and large losses in these magnets. Dipole A3D8 also needs to be considered for monitoring. Chipmunks

may be an alternate method to avoid large losses in these dipoles. Substantial losses in these magnets could cause residual activity. The NASA users need to walk by these dipoles to get to their sample exposure area. Increased residual activity may create the potential for increased exposure to the NASA users. In addition, large losses in these dipoles could create soil activation under the magnets. The beam line operation and tuning will be conducted by MCR. The beam loss monitor system can be used to monitor losses in this area. The final system will need to be checked to ensure it is sufficiently sensitive to prevent substantial losses. A sub-committee will review the final logic and changes for these interlocks. **(CK-A-FY2001)**

The committee approved the use of remote controlled access for the area. The area presently has a hand scanner. Many NASA users wear gloves, which makes it difficult to use the hand scanner. The committee approved the use of iris scan equipment for release of the access key pending testing and review. **(CK-A-FY2001)**

The committee also approved the use of a card swipe and hand scanner at gate UGE3 for proton radiography. The system will allow for a controlled access key to be released locally to approved personnel. This eliminates the large amount of time required for the user to go to MCR to obtain a controlled access key and then return it after a short access. The system will have a key switch in MCR to allow operations to disable the release of keys from the UGE3 gate key tree. This logic, hardware and administrative controls must be reviewed before use. **(CK-U-FY2001)**

Attachments: (committee files)

1) Materials distributed with the meeting notice.