

Radiation

Safety

Committee

Minutes of 10/6/99 meeting

Subject: **EEPROMS for the AGS PASS Systems**

Present: D. Beavis, R. Frankel, L. Ahrens, A. Stevens, K. Reece, N. Williams,
T. Tallarico, A. Etkin, E.T. Lessard, J.W. Glenn

It has been proposed that the PASS systems in building 921 be modified to have EEPROMS. The certified code would be stored in the EEPROMS and could then be easily downloaded into the PLC should there be a program halt. This would improve the process of recovering from program halts. The cause of these halts is unknown but electrical problems have been suspected. These PASS systems have not halted since the g-2 program finished operation. The RHIC systems have not had any processor halts.

T. Tallarico provided a technical overview of using EEPROMS in the PLC systems (division B) for AGS PASS (see attachment 1). R. Frankel provided information on the differences for the EEPROMS which would be used in Division A.

The committee recommends that the department proceed implementing EEPROMS for the AGS PASS systems. The implementation should include the following requirements:

- 1) An OPM be written to cover the process of loading the EEPROMS. The EEPROMS should be burned in on a separate processor development system. **(CK-AGS-PASS-1)**
- 2) The mode for downloading should be on power up sequence. This process must be covered by an OPM which provides guidance on who should be consulted before doing a reload. The committee prefers this method rather than auto download which would prevent diagnostics from being conducted before downloading. The procedure should also include how any downloads are logged/reported. **(CK-AGS-PASS-2)**
- 3) In division B the jumpers must be removed from the EEPROMS as a means of protecting them from being overwritten. The test verification procedures must check that the jumpers are removed and that a fresh download has occurred before testing begins. The EEPROMS for div. A can be permanently locked from overwriting and require replacement for new code. **(CK-AGS-PASS-3)**

- 4) An OPM be written to provide a means of verifying that the code stored in the EEPROMS is still valid after it has been downloaded, although this could be done several days later. **(CK-AGS-PASS-4)**
- 5) A peer can only be operated with one division which has be download from a EEPROMS without verification. **(CK-AGS-PASS-5)**

There is a concern that the EEPROMS code could become corrupted if the cause of the processor halts is to event upsets caused by radiation.

- 6) An OPM be written for going field downloads with the code copy and the security laptop. **(CK-AGS-PASS-6)**

The committee suggests that an extra copy of the EEPROMs be considered to be stored in the safe along with the software disk copies.