

Date: December 16, 1993

Judy

Minutes of the AGS Radiation Safety Committee

Subject: A1 Line and A2 Line

Meeting Date: May 21, 1993

Present: D Beavis, H Brown, A Etkin, JW Glenn, E Lessard, A
McGeary, & E Njoku.

Guests: V Castillo, D Lazarus, D Phillips, & J Scaduto.

Summary

The proposed "Iron Pipe" shield for the A1 line, allowing it to have Class II beam levels was approved. A1 operation for '93 was reviewed and approved. There was an update on A target and A2 operation. Steering, beam switches, the fast electronics platform and fault studies were reviewed.

A1 Line for Heavy Ions

A Etkin presented his plan to upgrade the A1 line for Class II protection for Heavy Ion operation (Attachment 1). Proton operation would remain Class III.

The MPS Area and the area upstream, downstream of the quads, would be upgraded to Class II with redundant door interlocks (A1HICK1) and more stringent sweep procedures (A1HICK2). The Class II area upstream should negate the problems of Quad steering in the last Quads. The location of the walkway between A1 and B2 beams will require reevaluation for keeping the dose down for transients (A1HICK3).

In the past up to 40 mrem/hr has been seen along the Line, thus a few fault studies will be needed. One required location will be downstream of dipole string at A1D16 (A1HICK4).

An "Attached Cable" Interlock will be installed to assure the pipe is not removed (A1HICK5).

The area outside of the building, downstream of the MPS area will remain Class III. The door between these areas will now have to redundantly interlock on entry (A1HICK6).

A1 for Protons

Etkin also outlined the changes in the A1 line for the upcoming run.

It will continue as a Class III area, with an internal storage area. Access to this area will require a special procedure (A1CK1). Fences will be upgraded and the elimination of "cabled" areas eliminated.

Control and sweeping of the "Light Wall" house will be reviewed by a smaller group at a latter time.

To control where the beam goes the MPS's polarity switch will be Locked & Tagged (A1CK2)

Surveys D/S of the MPS area will include a search for a muon beam (A1CK3). Parking lot levels will be carefully surveyed to assure us that levels will be less than 100 mrem/year(A1CK4).

A2 Beam Line Update.

The area will continue to be considered a Class I area until more information is available. HP/EA will do the sweep.

To keep the beam on the stop D5 & D6 will be tagged to the opposite polarity (A2CK1). The possibility of significant quantities of lower momentum particles missing the dump needs evaluation.

The heavymet collimator in A2D1 is installed. Beam will not be delivered until a protection system is developed and approved by the chairman.

The fast electronics platform over the experiment is to be a Radiation Area when a Chipmunk is installed. Six foot fences are required to prevent access to the experiment. A user controlled gate may be provided to prevent "casual" access.

Fault studies will include:

Fault on A1D2 levels in the "D Crotch", levels at 10^{13} /sec could be out of compliance - a 10^{12} /pulse limit (A2CK2) is needed until this is resolved.

Fault on A1D4 out trench East & West.
Secondary beam crash caused levels on the fast electronics platform.

Beam Switches -

With D2 on does collimator eliminate problems caused by high D1 currents?
With D3 on, scan Q7 to see if it will compensate to allow beam.

The effects of beam motion on the stop is to be checked for possibly missing the stop. High levels at the wall top is expected if the beam is steered out of the reentrant well, an interlocking Chipmunk will prevent this (A2CK3).

Relevant A Target, A1 & A2 Line Operation Items.

The new A2D1&2 can only move the proton beam about 10" closer to the beam port to the A1 primary cave (Attachment 1). This is not a problem for negative operation.

The AGS will control all magnets affecting the proton beam between the A Target and A1D3.

The possibility of a low momentum proton beam being bent to miss the stop, must be checked and if necessary prevented. (This should be checked for all beams: ACT-043)

Fault studies include:

West side leakage from a beam dump on A1D3&4.
Levels on the power supply
Target water levels

Action Items: ACT 043, Review primary beam dumps to see if a low momentum beam could be steered off the stop. RSC Rep. J Bunce, AGS Rep. P Pile/A Pendzick.

Check List Items:

A1HICK1 - Redundant door switches on MPS area access doors.
A1HICK2 - Sweep procedures upgraded for Class II operation.
A1HICK3 - Walkway between A1 & B2 evaluated to minimize dose.
A1HICK4 - Fault studies developed, particularly down stream of A1D16**
A1HICK5 - An "Attached Cable" Interlock installed to pipe.
A1HICK6 - Door into MPS area from outside Class III area interlocked.

A1CK1 - Special procedure in place to control access to storage area within MPS area.

A1CK2 - MPS polarity Tagged.

A1CK3 - Muon beam searched for in parking lot.

A1CK4 - Parking lot levels found to be in compliance.

A2CK1 - A2D5/6 Tagged not to be in same polarities.

A2CK2 - 10^{12} limit placed on intensity until fault studies done.

A2CK3 - An interlocking Chipmunk installed on the shield top.

Attachments (file only):

Attachment 1: "Upgrade A1 Transport to Class II" [Etkin]

Attachment 2: Lazarus to Glenn, Apr. 30, '93

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