

Date: November 24, 1992

Minutes of the AGS Radiation Safety Committee

Subject: RHIC; Transfer Line Radiation Levels.

Meeting Date: November 11, 1992

Present: D Beavis, H Brown, A Etkin, C Flood, JW Glenn,
E Lessard, A McGeary, K Reece, J Spinner, A Stevens, P Yamin,
& H Foelsche.

Summary

An analysis indicates the shielding for the Transfer Line is generally sufficient. Only a couple of small areas may have to be controlled during operation.

Meeting Minutes

First, A. Stevens addressed the question, raised at the last meeting, of whether the access tunnel to the beam switching enclosure represents a weak spot (for punch-through) in the shielding. Based on the transparencies (Attachment #1), it would appear that this is not a problem as a minimum of 27 ft of earth/concrete is present.

He then spoke about the prompt radiation calculations which have been done as described in "Analysis of Radiation Levels Associated with Operation of the RHIC Transfer Line", Draft Version 5 dated 09/28/92 (Attachment #2). Additions/amendments to that version of the document were the following:

The earth elevation contours shown are of 1989. They indicate that some regrading will be required to have 13' of soil over all the tunnels, also all berm tops should be checked for further erosion.

The effect of allowing for a 5% deliberate scraping by collimators was briefly addressed. However, no decision on the location of collimators has as yet been made. It was emphasized that preoperational commissioning studies in the Transfer Line, scheduled for 1995, should greatly clarify the need for scraping and local shielding. A new plot of yearly levels along the TL show that the hottest spot along the line is over the collimator.

It was noted that 24' from the center of the burm radiation levels are down by a factor of 100, thus Skyshine estimates are high.

The formula used for "groundshine" in the 09/28/92 version was not correct. A formula appropriate to the model used reduces the (already) small numbers given there by factors of 2-4.

The problem areas for the TL shield are:

The low point - This area is probably in compliance, a fault study should confirm this. If it isn't, making it a controlled area should suffice.

Over the dump - This must be a radiation area while the TL is operating. During dump studies, the 52 mrem/hr requires control of radiation workers in the area.

Over a collimator, if installed - This must also be at least a radiation area while the TL is operating. Information on continuous levels will determine what control is necessary.

A footnote which gives the induced activity at 1-ft from the side of the dump at 1 hour cooling should read 1.5 mrem/hr instead of 20 mrem/hr.

A copy of Stevens's transparencies is appended (Attachment #3).

The following comments followed Stevens' presentation. (Though probably minimal and not in the scope of this presentation, they are included in the minutes for future evaluation.):

The activity in the magnet cooling water near the dump should be estimated.

The maximum radioisotope concentration in the soil should likewise be estimated.

The reentrant hole in the marble skin of the beam dump should be minimized to best shield where the beam hits.

Attachments (file only):

- #1 - A. Stevens transparencies.
- #2 - "Analysis of Radiation Levels Associated with Operation of the RHIC Transfer Line", draft of 9/28/92
- #3 - Transparencies on the above.

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