

MACHINES AND AREAS COMMITTEE

Summary of meeting No. 67 - March 1, 1977

Present

E. Asséo, O. Barbalat, D. Bloess, M. Bouthéon, M. Georgijevic,
C. Germain, U. Jacob, L. Hoffmann, G.L. Munday (Chairman), G. Plass,
Ch. Rufer, K.H. Reich

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1. Patch Panel for Auxiliary Power Supplies

A proposal has been prepared by M. Bôle-Feysot et U. Jacob (PS/SM/Note 77-8). It is intended to allow the connection of the various auxiliary power supplies housed in Buildings 152, 355 and 365, with their loads (dipoles and correcting lenses) located in the ring.

The project involves the connection of 45 power supplies. Two types of links have been designed according to the power handled. The study has taken into account the experience of other similar installations at CERN and includes a number of safety features.

The cost of the project is estimated to 500 kFrs (PS/SM/Note 77-9) of which 195 kFrs will be paid by the insurance (damages of the 1975 fire). The project was approved.

2. Review of Possible Projects

For planning purposes it is necessary to give to the CERN management at the beginning of each year an indication on the possible projects (replacement and development) which are likely to be undertaken in the coming years. The following items were reviewed.

- TIK

It is agreed that this device, which was considerably upgraded above its initial performances, is working in marginal conditions and that something should be done about it. Two technical solutions have been proposed and will be decided upon at the next MAC meeting.

- TIS

There is only one spare unit. It is feared that if the unit in the machine fails, it might not be repairable because of its high activity.

It is agreed that a second spare should be built but there are no people to work on this before 1978.

- Test power supply for septum magnets

This project has recently been authorized (see PS/AE/Note 77-33). It was necessary to have something better than the old Miebach unit (from 1963) to test the present high duty cycle magnets.

- Vacuum improvements of TT2 transfer line

Recent breakdowns have shown that the installed pumping speed (20 h. pump down time) is insufficient for present day use. This vacuum system was designed at a time when the line was feeding only the ISR. Access and controls (from the Y building) are awkward. An improvement proposal presented by C.E. Rufer and estimated to cost 170 kFrS was approved. The project leader will be P. Riboni.

- PSB vacuum improvements

Improvements to reduce pump down time can most likely be paid from the exploitation budget.

- Polar "figure of eight" loop

The present "eight" loop (boucle en huit) is installed around the magnet yoke. Its effectiveness is limited at high energy by saturation effects. As long as the peak PS intensity had only to be accelerated to 10 GeV/c for the SPS, this was no serious drawback. For \bar{p} production, one will have to accelerate the highest possible intensity to 26 GeV/c and the present arrangement might be a limitation. This will however not be clear until 1979 when one could test the 5 current PFW arrangement and see if a polar loop is really necessary. The 3 current arrangement might already be sufficient when equipped with suitable power supplies (1000 A instead of 700 A today). As the installation work will be considerable, sound arguments and a strong motivation will be needed to justify such a project.

- Spare transformer for PSB main power supply

The principle of this purchase was already agreed previously (see MAC No. 63). It was however felt that the probability of failure of the existing unit was too low to justify a full standby installation with switchgear. Formal decision on the transformer itself was postponed for a few weeks until all the divisional commitments are known.

- PSB extraction kickers

These kickers are of the same construction as the already discussed TIK but are less strongly stressed electrically. Spare units could be envisaged but not before 1979/80 with the existing resources.

- Upgrading of Tekelec power supplies

This will be carried out with money from the insurance as these supplies were damaged by the 1975 fire.

- Instrumentation

Loss monitors for the PSB are under discussion in the Instrumentation Committee (PS/OP/Min. 77-12). A similar data acquisition system will be

required for the PS. A project will be presented in the Spring. Other instrumentation related systems are envisaged for later years (beam-scope, PSB dump target, etc.). It was agreed to reserve a yearly amount of 200 to 300 kFr for future unspecified instrumentation.

- PSB transverse feedback

In spite of its desirability stressed by several persons, progress is slow because of the difficulty of the problem and the lack of people to work on it. A project could hopefully be started at the end of 1977. The cost is provisionally estimated at 450 kFr.

- Extension of PFW to 5 circuits

As stated before, this project can only be decided upon in 1979 after tests with the new coils, but is included in the long term plans.

- PS density and intensity increase

This heading covers a variety of possible items previously listed by P. Lefèvre (PS/DL/Notes 76-13 and 76-26). Studies are under way to determine the most desirable and the most urgent ones.

- Direct current current transformers (DCCT)

The result of this development carried out by I. Kamber while at Berkeley could be interesting. One could monitor directly the current on the loads rather than on the power supplies and speed up retuning when changing supplies. The estimated cost of about 500 kFr for all the high power auxiliary magnets could be spread over several years.

It is understood that the modifications necessary for multibatch filling of the SPS (e.g. modifications of PSB magnet power supply to allow irregular pulsing) are included in the project (see PS/AE/Note 77-2/Rev.1) and are not included in the present PS budget requests. It is expected that approval will be given this Summer; meanwhile work should continue.

The same considerations apply to the indirect implication of a 200 MHz acceleration system in the PS (see PS/DL/Min. 77-3). They should however be investigated and listed so as to be included in the project if it is decided to go ahead*.

The improvement of the PS Controls is now prompting extensive studies of equipment interfacing. Modifications upstream of the theoretical interface line will be needed and it is not always sure if they have been included in the 6 MFrs foreseen in the project. If not, they should be covered by the basic exploitation budget of the groups; therefore a project schedule will be needed sufficiently in advance.

3. Future Meetings

March 10	:	TIK
End March	:	Review of SC projects
May	:	Loss monitors

O. Barbalat

* M.C. Crowley-Milling and G.L. Munday agreed to convene a discussion on this subject when technical data and results of machine studies are available.