

M E M O R A N D U MCERN/EEC-75/52
23 September, 1975

To : The Members of the EEC

From : PS Co-ordinator

Subject: Effects due to the PS fire on the schedule of PS experiments

Assumptions:

1. The PS is hoped to start-up on 24 September at 19 GeV/c and with low intensity ($1-2 \times 10^{12}$ ppp). For the first two or three weeks, only the ISR and the South Area will be able to run.
2. Acceleration to 24 GeV/c should be possible around 10-13 October, and the East Area (SE 62) should come back into operation at about the same time.
3. There will be a short PS shut-down from 19-27 October (2 days shorter than planned originally), after which also the g-2 experiment (FE 74) and the HBC200 (FE 58) come back into operation.
4. Acceleration to 26 GeV/c should be possible around mid-November, eventually already beginning of November.
5. An extension to the neutrino run in freon with Gargamelle is planned for the first week of the last period in this year.
6. The Booster will not be available for PS physics for one week before the end-of-year shut-down.
7. The annual long shut-down will commence at Christmas.

Consequences

1. As the PS energy will initially be limited to 19 GeV, it has been decided to change the sequence of target $\hat{1}$ and $\hat{8}$ operation, and to run target $\hat{8}$ during the seventh PS period. Presumably the PS period starting end of October will then be target $\hat{1}$ again, and there would be only this target $\hat{1}$ period remaining this year. In other words, target $\hat{1}$ has lost one period, whereas target $\hat{8}$ will have the same number of periods as scheduled before, one of which will be shortened (about $2\frac{1}{2}$ weeks instead of $3\frac{1}{2}$ weeks).
2. The East Area will have lost almost two periods. There remain two periods on the schedule. In addition, there may be scheduling problems because of conflicting intensity requirements, and the availability of the Booster.

In detail, the experimental programme of 1975 is affected as follows:

S 97: (g-2)

Due to the Gargamelle run, only about three weeks can be scheduled before the shut-down. Therefore, the total running time in 1975 would be 8 weeks, as compared to 17 weeks on the PS draft schedule.

East Area Experiments

P 7: K, \bar{p} Atoms

The experiment is on the floor since April. It will not be possible to schedule the two periods approved for data taking before the shut-down. At least one period is required in order to see X-rays from liquid hydrogen. The schedule of one period or more would only be possible in several short runs, disrupting also the schedule of experiment S132 (bispectrometer).

S130: $K_L^0 p \rightarrow K_S^0 p$ and S147 $K_L^0 p \rightarrow \Lambda \pi^+$

Two more periods are approved. The time is available on paper, but before the shut-down the schedule is uncomfortably tight and does not allow for unforeseen problems with the PS. Also the group is interested

in an extension beyond the shut-down. However, this would cause problems, as then the c_9 beam could not be improved for experiment S141, nor could the b_{20} beam be modified during the shut-down for another experiment to follow later in the year.

S132: Bispectrometer

One more period is approved, which can be scheduled. Half of this period was with priority to control the beam intensity.

S136: $\pi^- p_{\uparrow} \rightarrow \pi^+ \pi^- n$

Two more periods are approved. At least 20 days of good beam are required to complete the experiment (see EEC/75-50). Under normal conditions this could be obtained before the end of November, but at the moment there is some uncertainty. In principle, a second period is already approved, but if the experiment would continue to run in December, then experiments S137 and S140 are seriously affected (see below).

S137: $K^+ n_{\uparrow} \rightarrow K^0 p$

Is waiting for experiment S144 to be completed, and for the polarized target magnet from experiment S136. The start of the installation of S137 is already delayed until 18 October, and by this time the forward spectrometer and one recoil arm will be at CERN ready for installation. All equipment will be ready at CERN by mid-November. There is also a dummy polarized target magnet at Saclay to mount the chambers. Therefore, even if the final magnet would not be available before the shut-down, the group wants nevertheless to set up in order to reconstruct K^0 's from the $\pi^+ \pi^-$ decay. If S144 would be extended beyond the short PS shut-down, the Gargamelle run at the end of November could be used to change the beam.

S140: $K^- p \rightarrow \Lambda X^0$

Waiting for experiment S136 to be completed. It is considered important to get some data before the shut-down. The beam could be changed during the Gargamelle run (see also EEC/75-50).

S141: $pp_{\uparrow} \rightarrow pp$

One more period is approved. The experiment is far from being completed (see EEC/75-47).

S144: $K^{\pm}p$ real parts

One more period was approved. Part of the data could already be taken during the last Gargamelle run. There are good data for K^+ and K^- 4.2 and 10 GeV/c, and K^+ at 7 GeV/c. A run of K^-p at 7 GeV/c (and $\bar{p}p$) is still missing, and two weeks of beam time would be required. If this extension is approved, there is a fair chance that the experiment can be completed in the November period, leaving one period before the shut-down to its successor S137 in the same beam area (see above).

South Area - Target $\hat{1}$

S131 : $K^{\pm}p \rightarrow K^0\pi^{\pm}p$

Two more periods were approved, plus one requested. Most data with K^- beam have still to be taken. The experiment cannot be completed this year.

S135: $pp \rightarrow e^+e^-$

Two more periods are approved. So far, 3 periods were useful for data taking. The approved periods (i.e. one in 1976) would be sufficient to complete the e^+e^- experiment. Two more were requested to study $\pi^0\pi^0$.

South Area - Target $\hat{8}$

P11: Hypernuclear spectroscopy

Due to the Gargamelle run, the time available before the shut-down will be one week less than the time approved for the experiment. Two more nuclei are to be measured (O and Bi), requiring at least one full period. There is a chance that the experiment can be finished in 1975.

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S134: $\pi^- p_{\uparrow} \rightarrow K^0 \Lambda$

One more period is approved and one requested (see EEC 75-48). If the remaining two periods in 1975 would be allocated, the experiment could most likely be completed before the shut-down.

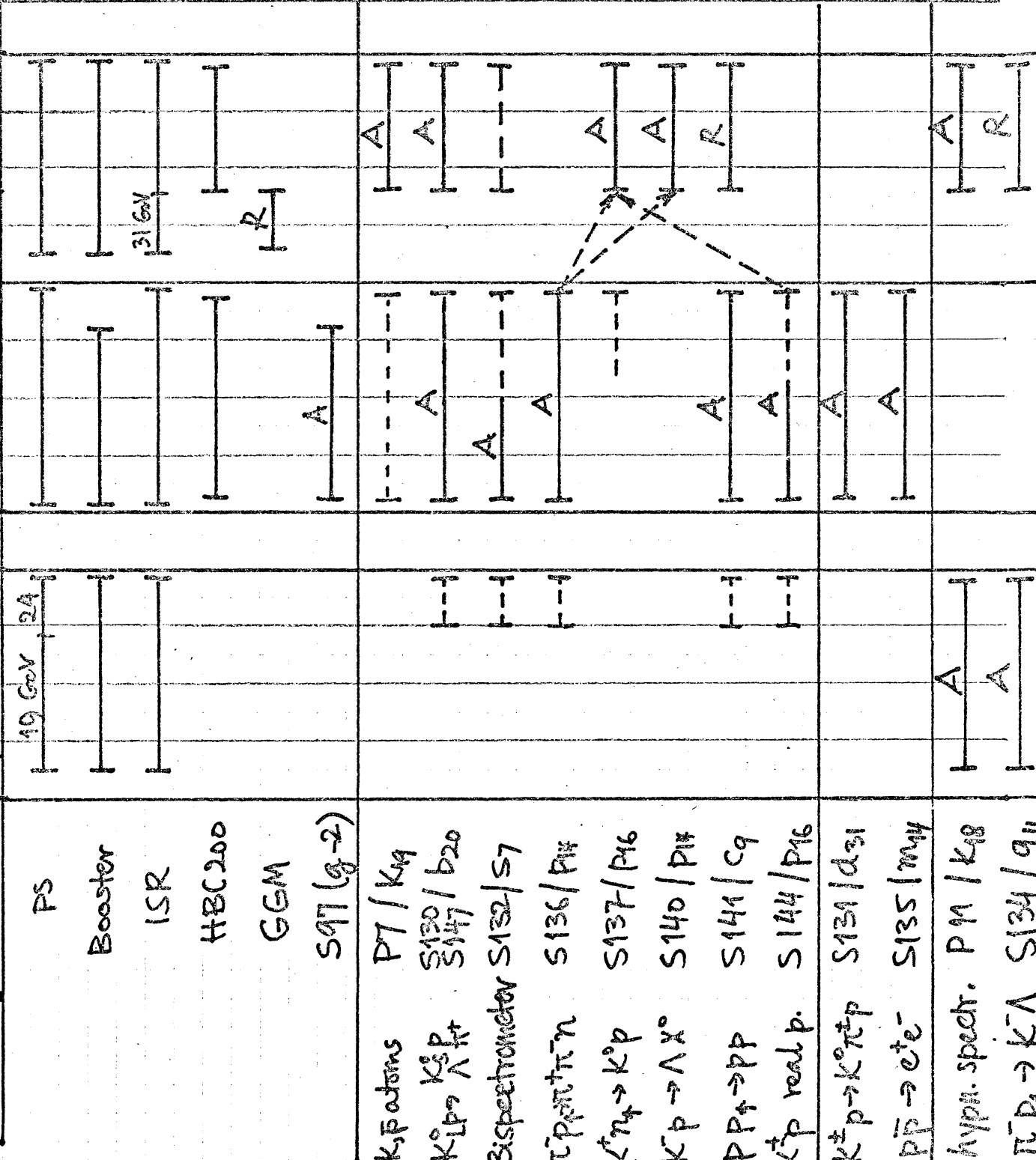
On the following page an example is given how the time remaining this year could be allocated.

H. Wahl

A = approved
R = requested

1976 ?

week 39 40 41 42 43 44 45 46 47 48 49 50 51 52
21 Sep 7 Oct 18 Oct 27 Oct 22 Nov 26 Nov 20 Dec



+3 periods requested
2 periods total already app^d
1 more period approved
+1 period approved
4 periods approved
+2 periods requested (or 3)
+1 approved period
+1 requested
+1 approved