CERN

M E M O R A N D U M

CERN/SPSC/79-134
SPSC/M 213
27.11.1979

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From: WA 1

Subject: Wide band neutrino beam running in 1980 before the shutdown

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1. 400 GeV ν running

Up to now, 1.5×10^{18} protons have been allocated for antineutrino running (WA 21) and 5×10^{17} protons for WA 59, to be shared equally between neutrino and antineutrino running. Within these allocations, therefore, there are only 2.5×10^{17} protons for 400 GeV ν running.

We would like to express our great interest in neutrino running at this energy and express our hope that at least 10^{18} protons in addition can be devoted to this kind of beam condition before the shutdown.

During the only previous 400 GeV WBB neutrino run, WA1 reversed the magnetic field in the second half of its magnet train in order to focus positive muons towards the WA 18 detector for polarization analysis. Although the events obtained in the hydrogen target for this run can be correctly analyzed, systematic work on iron produced events is not possible.

Our physics interests for this beam are:

a) High statistics, high q^2 structure function work on the valence quark distribution. We have been able to analyze the sea structure function from antineutrino WBB data, and would like to extend this work to the valence distribution, complementing in this way the NBB data analysis.

b) Hydrogen charged-current work. The analysis of the existing data shows that the vertex detector and reconstruction program works.

c) Multimuon production. From the WBB neutrino data at 350 GeV, 7000 $\mu^+\mu^-$ events have been fully reconstructed. Analysis of these events is in progress, and there is an indication that at high energy events are produced which are not explained by charm production, hopefully new physics. 400 GeV data might be very interesting here (450 would be better).

2. Removal of "plug" in 400 GeV $\bar{\nu}$ running

At present, in order to reduce the wrong sign component, $\bar{\nu}$ WBB running employs the "plug". This however, also removes the higher energy component in the beam. We would prefer that the remaining WBB $\bar{\nu}$ runs do not incorporate the plug, in order not to lose this valuable component. Charged-current event analysis is not affected adversely by this change.