national accelerator laboratory

TM-418
2254

ON THE CARE AND FEEDING OF BUBBLE CHAMBERS, etc.

T. E. Toohig

May 1973

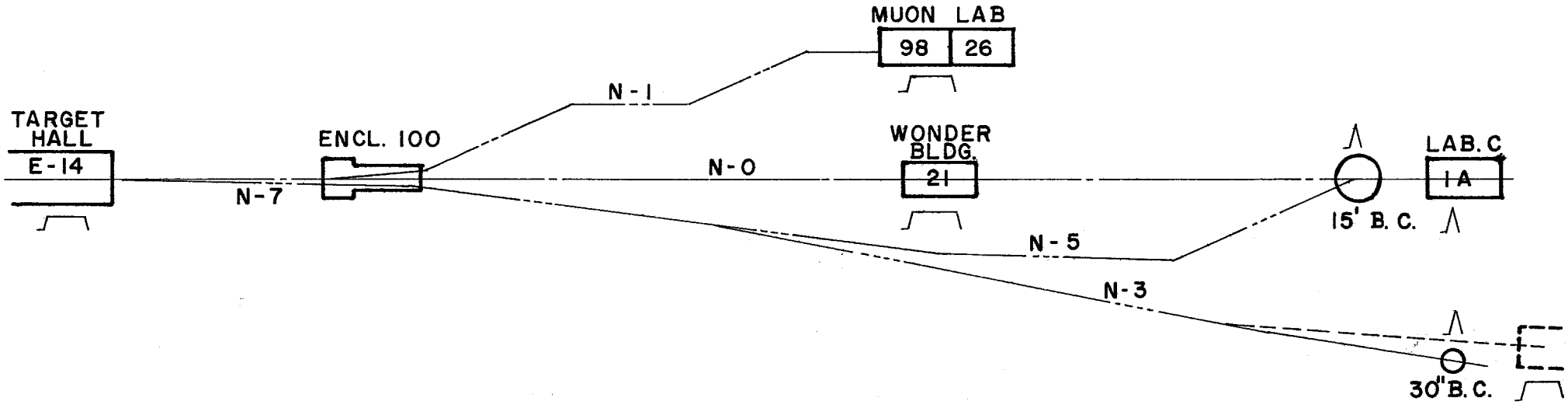
The present array of Neutrino Area targets and facilities is illustrated in Figure 1, together with desirable spill structures for the various experiments. With the addition of a wire septum/Lambertson station at Neuhall, the hadron beam line can be operated either pulsed for the bubble chambers or d.c. for Cerenkov studies, beam tuning, etc.

Gross power and power distribution limitations preclude simultaneous operation of the N-5 line to the 15-foot chamber and the magnet for the 30-inch chamber. The N-3 line itself, beyond the split at Enclosure 103, is low power, $\approx$500kw at 500 GeV/c, and can be operated along with the N-5 line, provided some switching or splitting arrangement is provided. A simple arrangement is to install two Lambertsons in Enclosure 103 in place of the two EPB dipoles that now deflect the beam into the N-3 channel. A one-meter fast magnet of the type used in Switchyard is installed in Enclosure 101. Single or multiple pulses or d.c. spill from upstream are deflected into the N-3 line by the Lambertsons. Turning off the fast magnet diverts the beam into the N-5 line feeding the 15-foot bubble chamber.

Operated by Universities Research Association Inc. Under Contract with the United States Atomic Energy Commission

Once this capability is established, it becomes straightforward to bend the N-3 line past the 30-inch bubble chamber, which is inoperative because of its power conflict with the N-5 line, to a counter experiment located behind the chamber. This makes maximum utilization of the highest-energy general purpose beam at NAL.

The proposed modified setup is shown dashed in Figure 1.



TM-418
2254

Figure 1.