ELECTRON EFFECTS IN THE NEUTRALIZED TRANSPORT EXPERIMENT (NTX) *

S. Eylon, E. Henestroza, P. K. Roy, and S. S. Yu, Lawrence Berkeley National Laboratory, Berkeley, 1 Cyclotron Road, CA-94720, USA

The NTX experiment at the Heavy Ion Fusion Virtual National Laboratory is exploring the performance of neutralized final focus systems for high perveance heavy ion beams. To focus a high intensity beam to a small spot requires a high brightness beam. In the NTX experiment, a potassium ion beam of up to 400 keV and 80 mA is generated in a Pierce type diode and transported through 4 quadrupole magnets up to a distance of 2. 5m. The beam can be neutralized and focused using a MEVVA Plasma plug and RF plasma source. We shall report on effects of electrons, generated at beam aperture, along the magnetic section and on the focusing beam in the drift tube. Furthermore we shall describe ways to mitigate the effects of unwanted electrons.

*This work performed under the auspices of the U.S Department of Energy by University of California, Lawrence Livermore and Lawrence Berkeley National Laboratories under contracts No. W-7405-ENG-48 and DE-AC-3-76SF00098.