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National Laboratory

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SEC Response

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Date 1/80-8/80 Time _____ Experimenters J.W. GlennSubject SEC ResponseOBSERVATIONS AND CONCLUSION

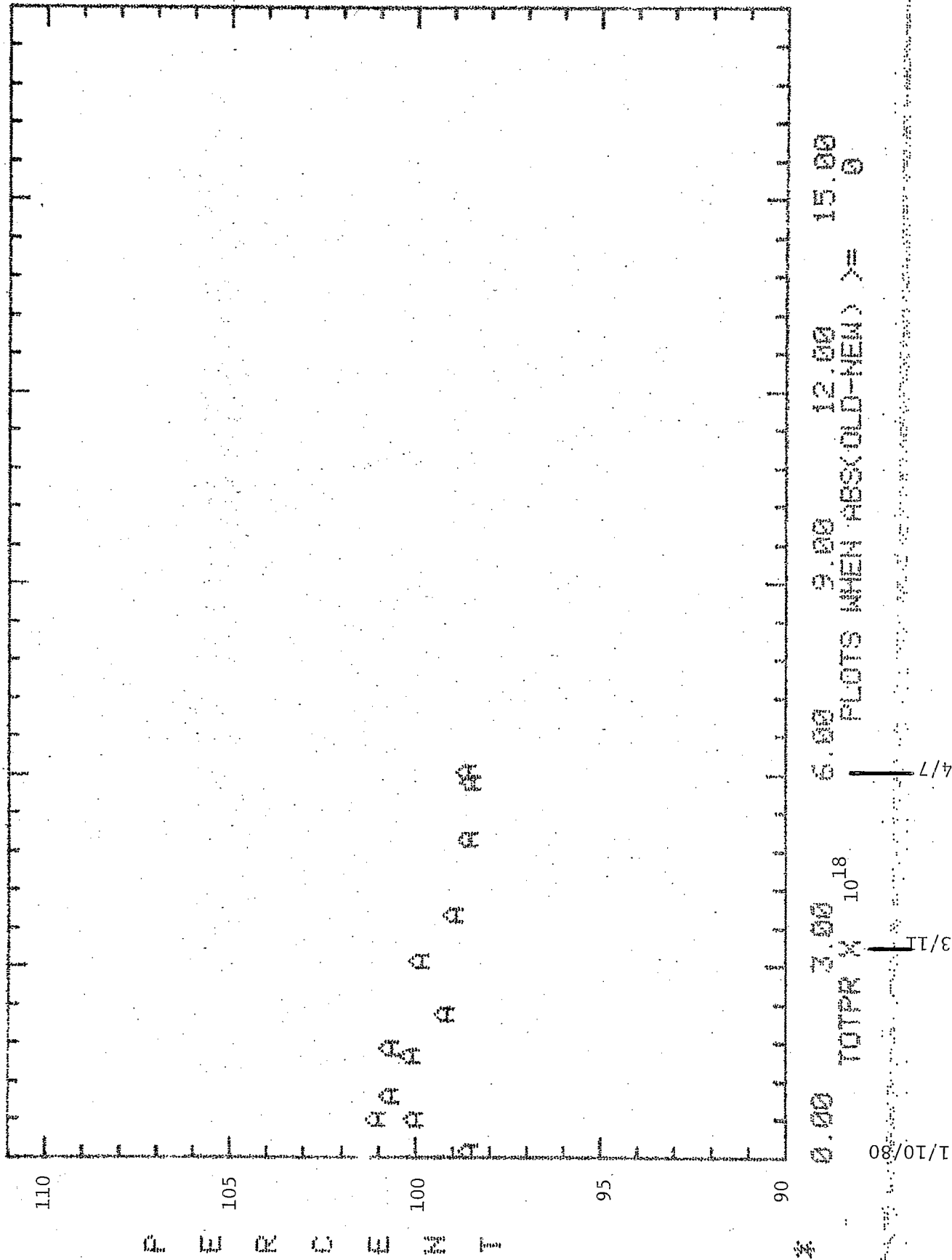
A "pre-production" SEC was installed at C010 in the SEB during Switchyard construction. Its electronics were calibrated on November 11, 1979. On April 16, 1980 a second SEC was installed after the first was destroyed by the F10 magnet failure. The readout electronics were checked then and on August 1, 1980 and showed an increase in sensitivity of 0.9%. Daily logs include a ten pulse average of the SEC/CMB and RLRM/CBM ratios. Past experience has demonstrated the stability of the latter as a good measurement of extraction beam losses, thus $(1 - \text{RLRM/CBM})$ is a good measure of extraction efficiency. Figures 1 and 2 are plots of SEC response to protons $((\text{SEC/CBM})/(1 - \text{RLRM/CBM}))$ versus the accumulated protons traversing the SEC. Approximate dates are also shown. The sharp dip in the response (5/14 to 6/11) occurred during the four-week shutdown then.

The beam was moved up by 70 mils at C010 on August 4, 1980 and an increase of 0.5% in response was noted. This distance is about equal to the calculated beam size here.

Conclusion: The first SEC shows an approximate 2% decrease in response for an irradiation of 6×10^{18} protons, a significant improvement over previous ones. The second SEC has increased in sensitivity by 12% during a four-month irradiation of 1.3×10^{19} protons. This increase in sensitivity is not highly localized in position.

PLOT OF SEC DATA Y4:RESPN.0= 90.000,100= 110.000
 18-AUG-80 15:45 41.4
 TEST VAR #NONE AVG= 1

Fig. 1 - First SEC Response



PLOT OF SEC DATA
 18-AUG-88 16:59 33.7
 TEST VAR #NONE A05= 1

Y4:RESPN,0= 90.000,100= 110.000

Fig. 2 - Second SEC Response

