



Brookhaven
National Laboratory

BNL-104003-2014-TECH
AGS.SN125;BNL-104003-2014-IR

SEC Response

J. W. Glenn

April 1980

Collider Accelerator Department
Brookhaven National Laboratory

U.S. Department of Energy

USDOE Office of Science (SC)

Notice: This technical note has been authored by employees of Brookhaven Science Associates, LLC under Contract No.DE-AC02-76CH00016 with the U.S. Department of Energy. The publisher by accepting the technical note for publication acknowledges that the United States Government retains a non-exclusive, paid-up, irrevocable, world-wide license to publish or reproduce the published form of this technical note, or allow others to do so, for United States Government purposes.

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, nor any of their contractors, subcontractors, or their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or any third party's use or the results of such use of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise, does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof or its contractors or subcontractors. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

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

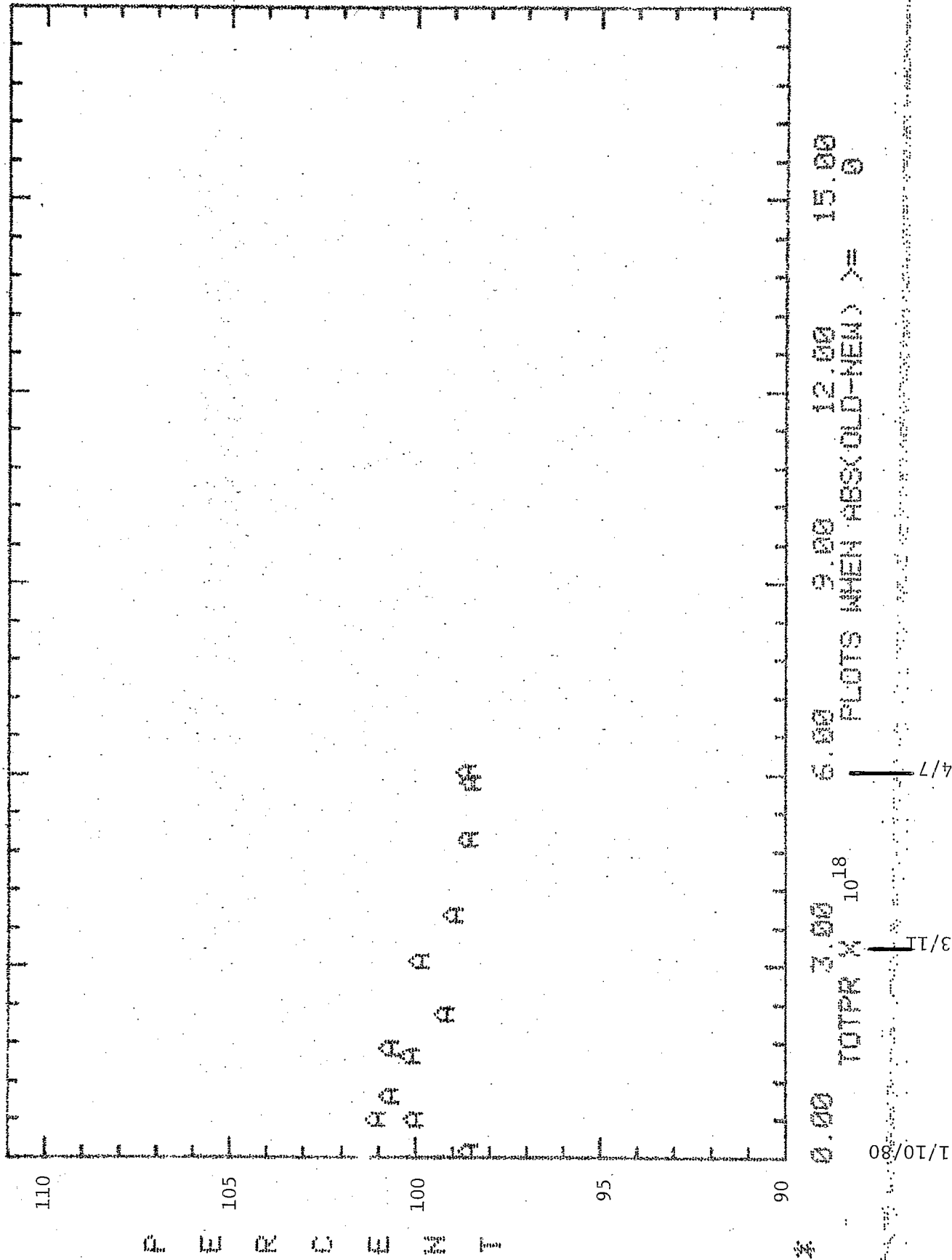
A "pre-production" SEC was installed at C010 in the SEB during Switchyard construction. Its electronics were calibrated on November 11, 1979. On April 16, 1980 a second SEC was installed after the first was destroyed by the F10 magnet failure. The readout electronics were checked then and on August 1, 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
 18-AUG-88 15:45 41.4
 TEST VAR #NONE AVG= 1
 Y4:RESPN.0= 90.000,100= 110.000

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

