

## Test of H<sub>2</sub>O Electrostatic Septum for SEB

G. Bagley

August 1974

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.AT(30-1)-16 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.

NO. 69  
Blumberg  
8/20/74

Studies Write-Up

Bagley, Blumberg, Glenn, Hsieh, Keane, Lee, Soukas

The slow beam was extracted using the electrostatic septum at H20 to reduce ejection losses.

The septum running at 60 kV/cm reduced losses in the F area by  $\approx 60\%$  and increased ejection efficiency by 6% after a crude optimization. Separation, losses, and efficiency were not dramatically affected by increasing the voltage to 80 kV. The H20 septum leakage current was below 10  $\mu\text{A}$  with beam passing through the device.

The separation caused by the H20 septum was observed at F5. The separation disappeared when voltage was removed at H20. The separation tilted when the high field skew quads were turned off.

Lack of a loss monitor around the ring and at H20 did not allow optimization of losses. This test was conducted with beam intensities of  $\approx 4 \times 10^{12}$ .