

G-10 MONITOR TELESCOPE

R. J. Warkentien

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Collider Accelerator Department
Brookhaven National Laboratory

U.S. Department of Energy

USDOE Office of Science (SC)

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Accelerator Department
BROOKHAVEN NATIONAL LABORATORY
Associated Universities, Inc.
Upton, New York

AGS DIVISION TECHNICAL NOTE

No. 73

R.J. Warkentien and G.W. Bennett
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G-10 MONITOR TELESCOPE

A triple coincidence telescope has been installed at the end of the G-10 + 90° collimator. The elements of the monitor consist of 1" x 1" x 1/16" plastic scintillators and 4" long lucite light pipes on 7746 photo-multiplier tubes. The high voltage power supply and chronetics 100 series logic units on "permanent loan" from HEEP are installed in the slow external beam terminal interface (TBH) near the Southeast gate.

Operating parameters for the system are:

Power Supply

(3 tubes in parallel)

voltage = 1700 V

current = 6.5 mA

Discriminators

attenuator = 0 db (except etc. A = 6 db)

clip = internal

rep. rate = 100

unused outputs terminated

Coincidence

resolving time = not critical,

rep. rate = 100

unused outputs terminated

Terminations

logic levels - 52 Ω

scaler outputs - 93 Ω

Tests on January 26th and 27th with circulating beam of 10^{12} protons per pulse and 400 msec spill showed the following rates:

Counter A \approx 7200 counts/pulse

Counter B \approx 4100 counts/pulse

Counter C \approx 3600 counts/pulse

\overline{BC} coincidental \approx 2600 counts/pulse

\overline{BC} accidentals \leq 3 counts/pulse

\overline{ABC} coincidental \approx 2200 counts/pulse

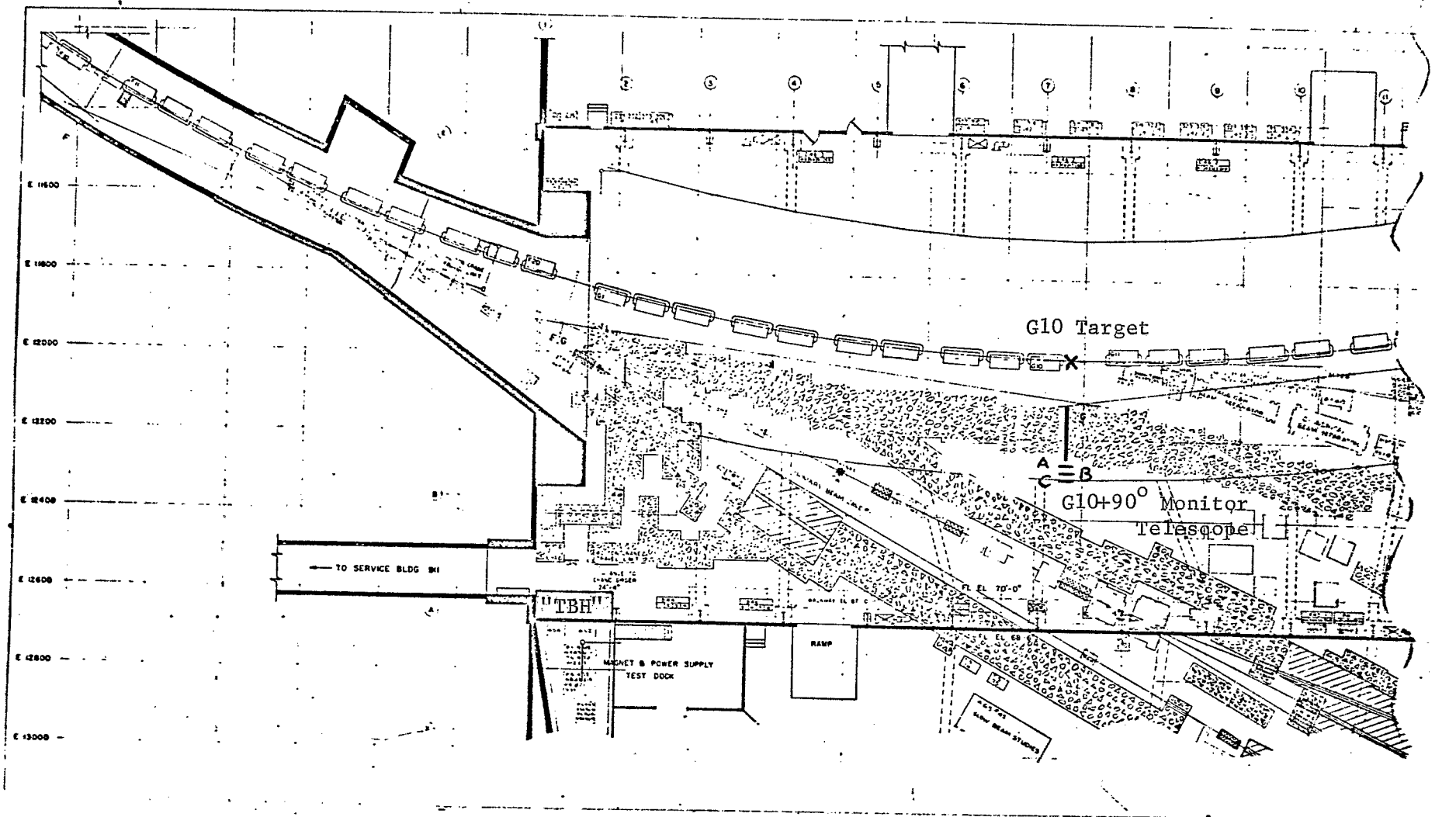
\overline{ABC} accidentals $<$ 3 counts/pulse

No change in triples/circulating beam was evident when the spill was shortened from 400 msec to a sharp spike, \sim 1 msec.

Appended are:

1. Layout and cable schedule
2. Logic diagram
3. High voltage curves
4. Timing curves

Distr: Department Administration
MCR Technicians
Operations Coordinators
R. Alvino
L. Blumberg
J. Cottingham
R. Frankel
W. Gefers
E. Gill
W. Glenn
J. Grisoli
J. Herrera
E. Raka
A. Soukas
U. Vogel



<u>Cable Number</u>	<u>From</u>	<u>To</u>	<u>Description</u>
1457	TBH	MCR	ABC (Tripple Coinc. Counts)
2568	TBH	Telescope	HV-A
2569	TBH	Telescope	HV-B
2570	TBH	Telescope	HV-C
2572	Telescope	TBH	Signal A
2573	Telescope	TBH	Signal B
2574	Telescope	TBH	Signal C

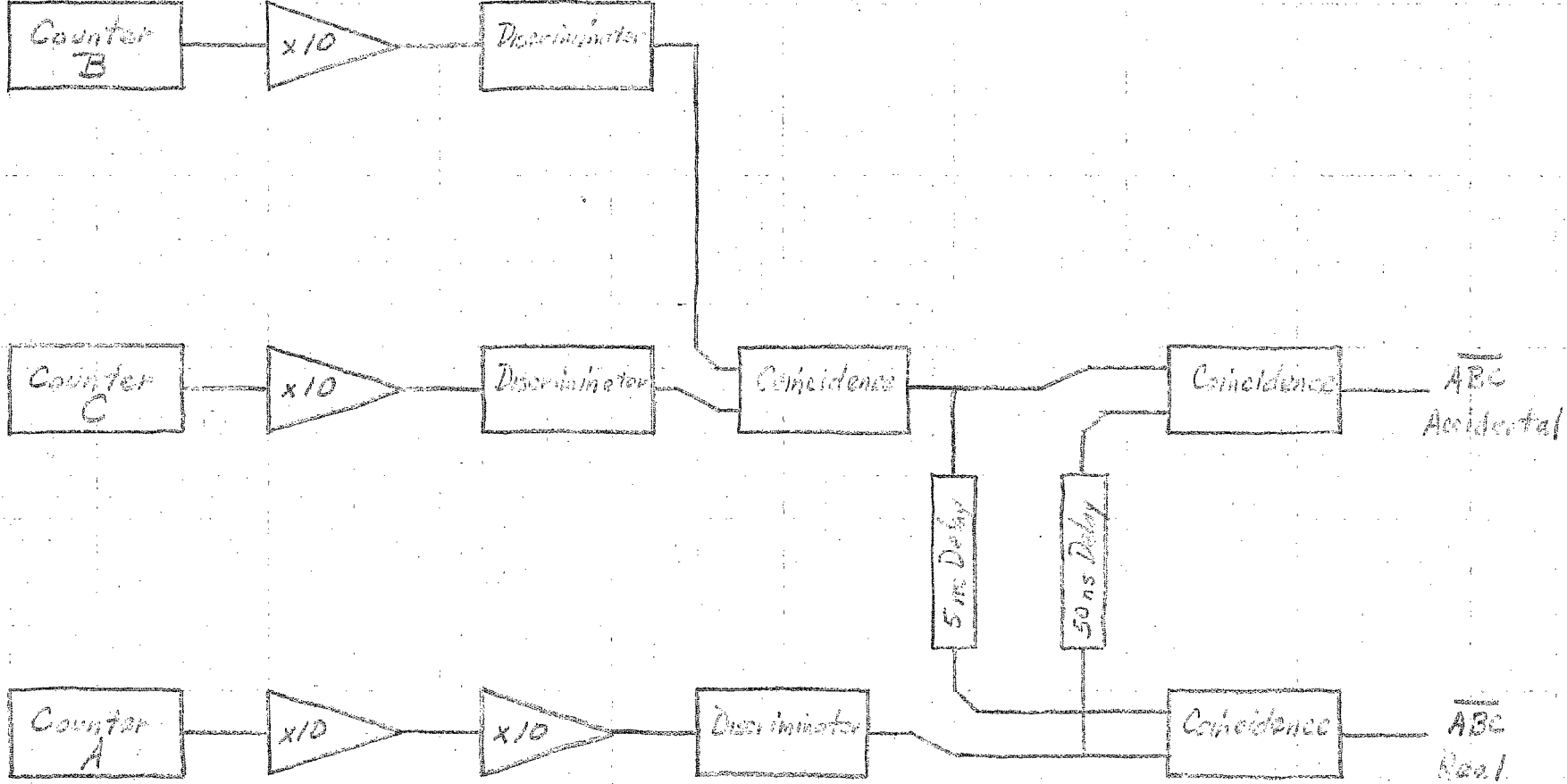
BROOKHAVEN NATIONAL LABORATORY

BY *SP* DATE _____
CHKD. BY DATE _____

SUBJECT *S10+90 Monte Carlo*

SHEET NO. *1* OF *1*
JOB NO. _____

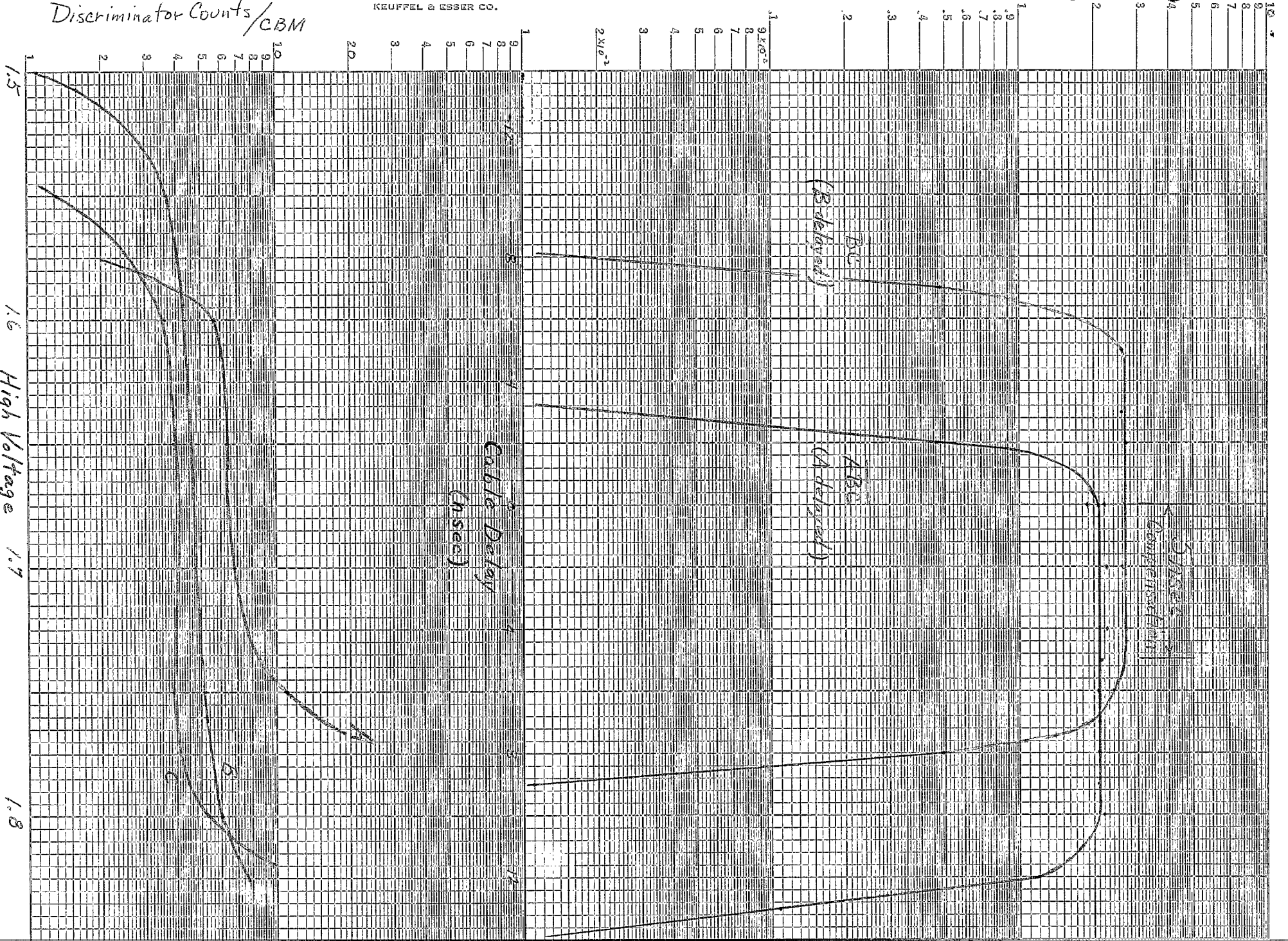
DEPT. OR PROJECT *Block Diagram*



Coincidence Counts / CBM

SEMI-LOGARITHMIC 46 6210
5 CYCLES X 70 DIVISIONS MADE IN U.S.A.
KEUFFEL & ESSER CO.

Discriminator Counts / CBM



High Voltage (KV)

1.8

1.5

1.6

1.7