BNL-104506-2014-TECH

AGS/AD/Tech Note No. 73;BNL-104506-2014-IR

G-10 MONITOR TELESCOPE

R. J. Warkentien

February 1970

Collider Accelerator Department

Brookhaven National Laboratory

U.S. Department of Energy

USDOE Office of Science (SC)

DISCLAIMER

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

AGS DIVISION TECHNICAL NOTE

No. 73

R.J. Warkentien and G.W. Bennett
February 18, 1970

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 photomultiplier 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	voltage = 1700 V
(3 tubes in parallel)	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

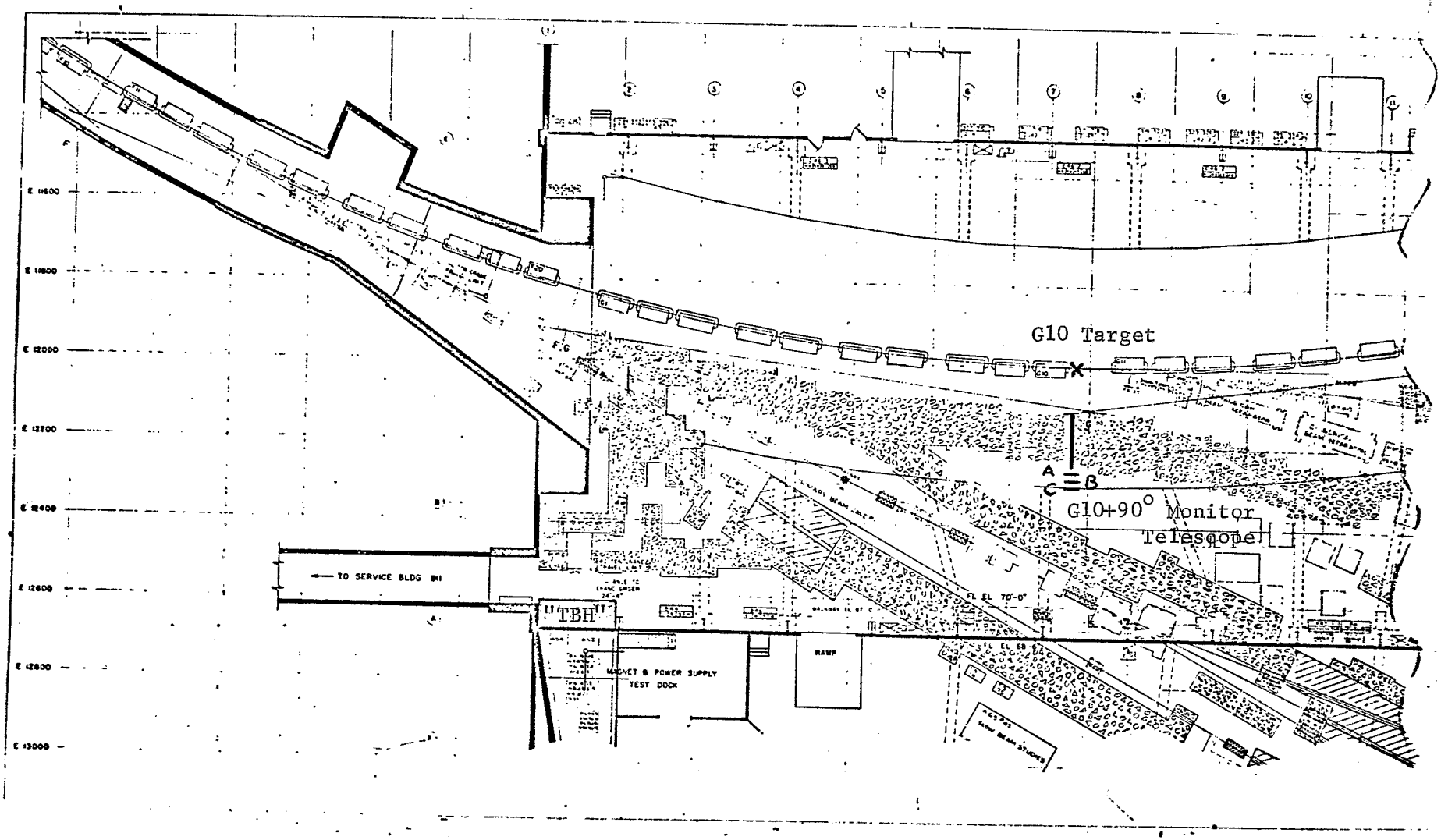
$\overline{ABC}$ accidentals $<$ 3 counts/pulse

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



Cable Number	From	To	Description
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

SUBJECT G10 + 90° Monitor Telescope

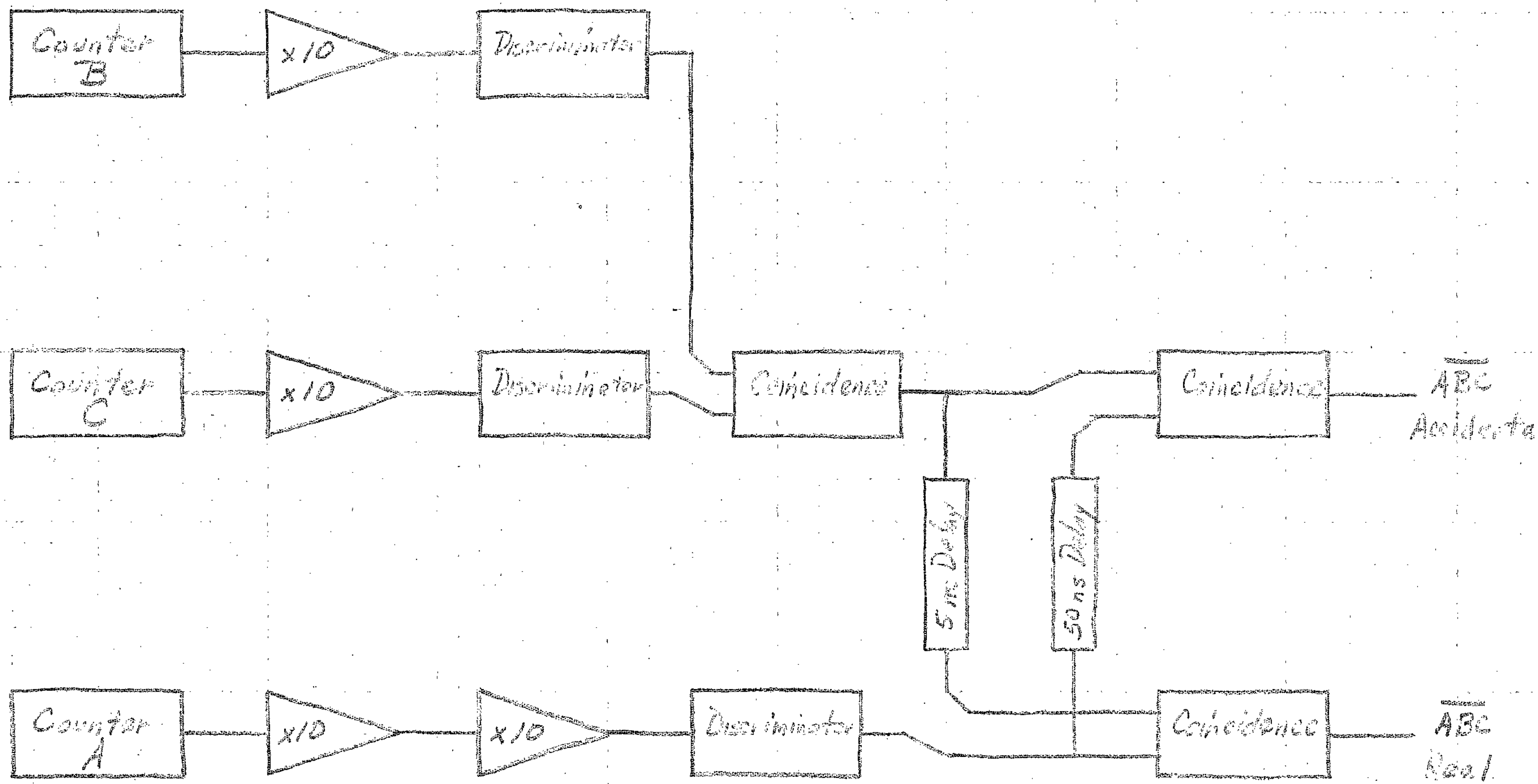
DEPT. OR PROJECT Block Diagram

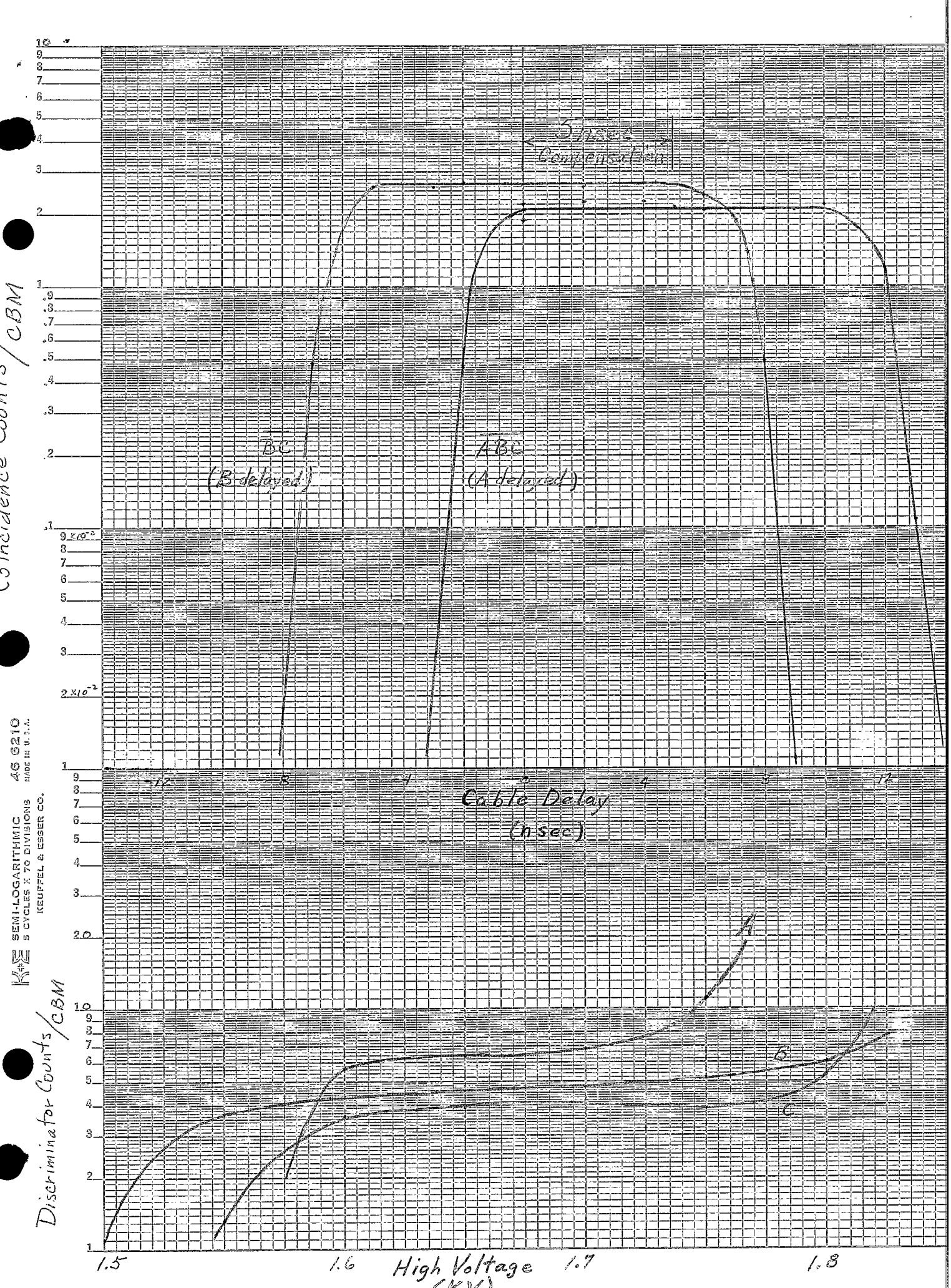
SHEET NO. 1 OF 1

JOB NO.

BY ____ DATE ____

CHKD. BY ____ DATE ____




Coincidence Counts/CBM
3 nsec Compensation
BC
(B delayed)
ABC
(A delayed)
Cable Delay
(nsec)
A
B
C
Discriminator Counts/CBM
High Voltage
(KV)
SEMI-LOGARITHMIC
5 CYCLES X 70 DIVISIONS
KEUFFEL & ESSER CO.
46 6210
MADE IN U.S.A.