Attachment
6(e)-A

November 14, 1962
Revised 10/63

Key Point Card
Procedure Check Points
In Cobalt Radiography Work

The Necessary Equipment on The Job Is:

1. Detectors - Film, film badges, dosimeters, lead numbers, shims, penetrameters, tape and gamma ray survey meter.

2. Tools - Handling tongs, magnetic handler, tubes, wire ladder or scaffold, spring rope and film holding devices.

3. Protection - Rope and radiation signs, warning blinker light, tarpaulin, canvas, polethylene film, pliers, lead sheets.

Knowledge of The Area Where Working Should Include:

1. Knowing the nature of any hazard existing in the area.

2. Knowing where the nearest telephone is.

3. Knowing what men are near and who their supervisor is.

4. A consideration of stairways, floor gratings, sewers and openings in the floor, congested areas and escaping gasses or fumes.

Normal Work Procedure Includes the Following:

1. Lift the lead shielding container properly keeping your back erect and using your legs.

2. Work in pairs is required for the most expedient and safe handling working conditions with the cobalt source.

3. Prepare against the possibilities of dropping or losing the cobalt capsule.

4. Have everyone in the vicinity alerted as well as supervision. Responsibility of using radioactivity is to make certain that other personnel cannot by accident or ignorance be exposed to its rays. The area of radiation should be roped off for a safe distance, 77 feet from the large source or that which allows no more than 2 mr per hr. (This requires the use of the gamma ray survey meter.)

Normal Work Procedure Includes The Following: (Continued)

5. Each man entering the area of radiation must have a film badge and a dosimeter. Dosimeters must be read before hand and should be checked about every fifteen minutes to assure recognition of over dosage. Permissible dose limit is 100 mr/wk.

6. Thread the source and secure it when there is a possibility of losing it in the system. While performing this threading, make sure there is light to see by and a clean, ample place in which to handle the source.

7. Allowable time is sharply reducedat closer distances. Radiographers should never approach closer than a few feet from the source and under no circumstances whatsoever should he ever come close enough to touch it.

8. To keep personnel exposure to a minimum, the complete exposure set-up is made before any radioactivity is handled. Objects to be inspected, film holders, penetrameters, identification are all in place and the source set-up firmly located before the shielding container is opened.

9. All persons concerned should be aware of safe working distances and times. See figures 1 and 2.

10. Shielding should be provided to keep radiation levels as low as possible without interfering with the use of the source.

11. Source will be wipe tested by Environmental Research Laboratory at intervals not to exceed six months.

All sources must be plainly marked according to AEC regulations to warn transients of their presence.

Activity of the small source as of October, 1963 is 190 mc.

Calculated Radiation Levels from 190 mc Co^{60} Source

1 ft.	266 mr/hr
3 ft.	30 mr/hr
6 ft.	7.5 mr/hr
12 ft.	1.9 mr/hr

Normal Work Procedure Includes The Following: (Continued)

Radiation levels from the large source - 840 mc as of October, 1963

On contact - 380 r/min.

(See attached Graph figure 2 for dose rates vs. distance)

LCS:sjl

FIGURE 1

Time to Receive 10 & 100 mr Exposure from 190 mc Co^{60} Source

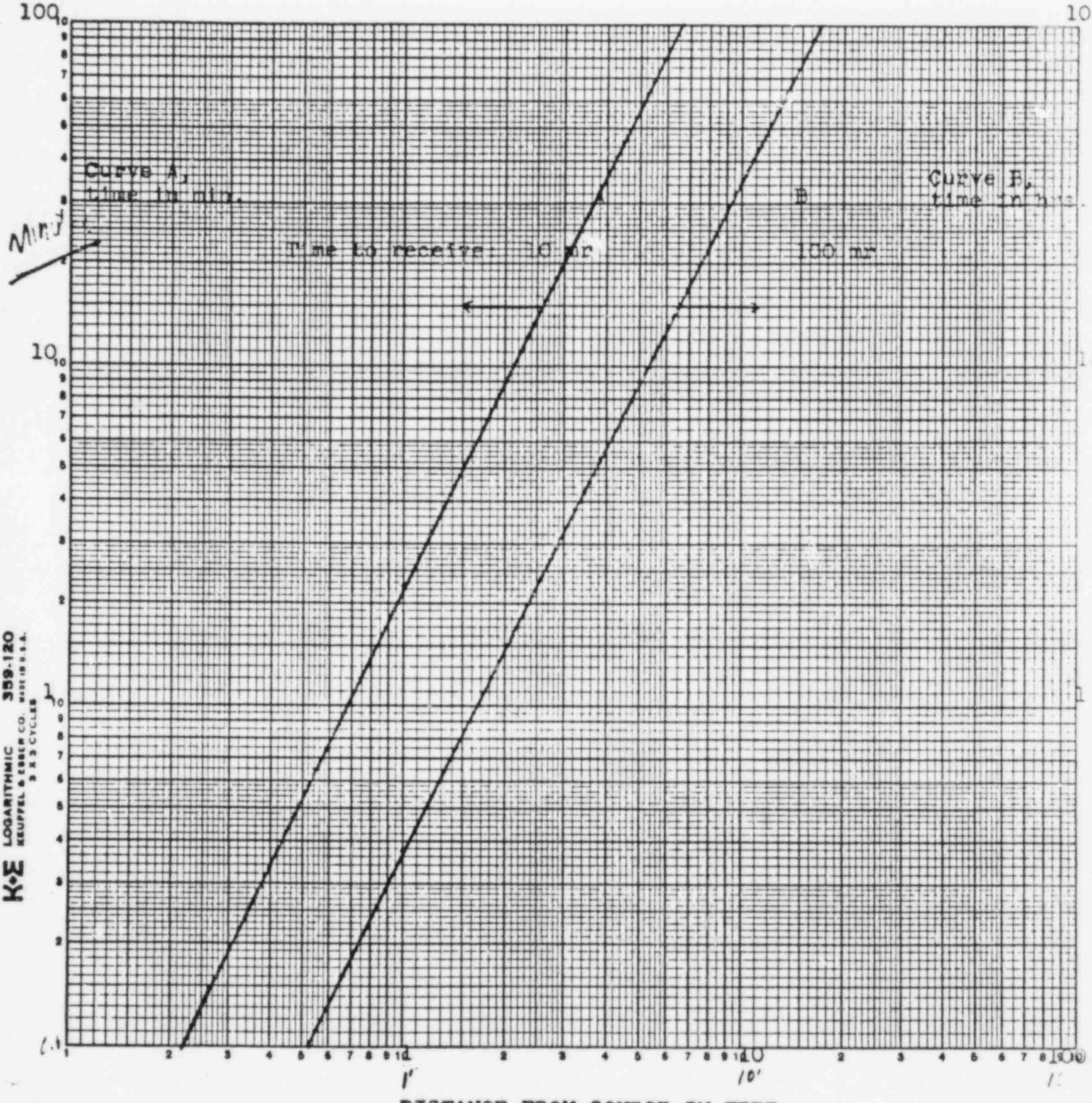

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FIGURE 2

Time to Receive 10 & 100 mr Exposure from an 840 mc Co^{60} Source

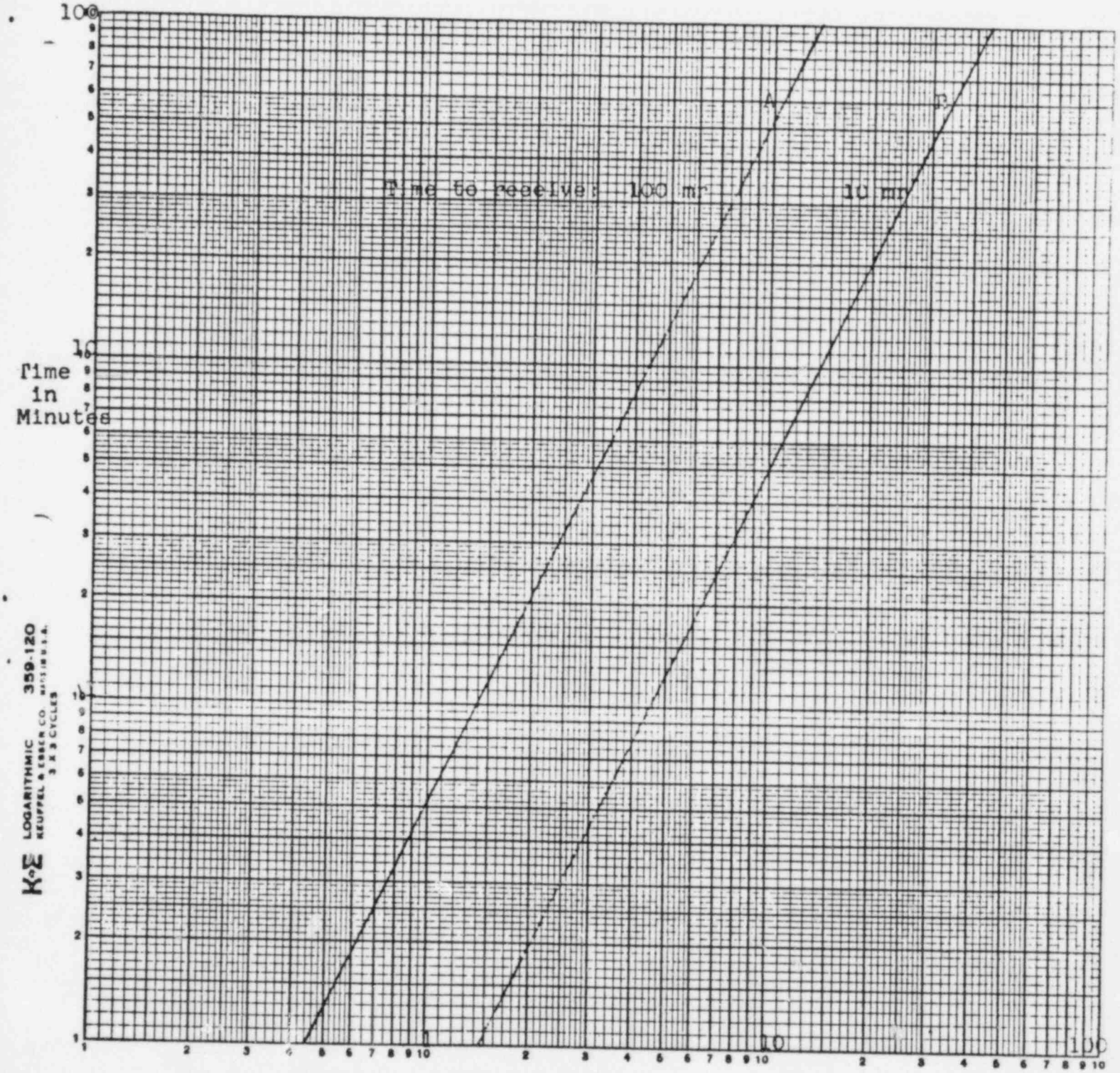

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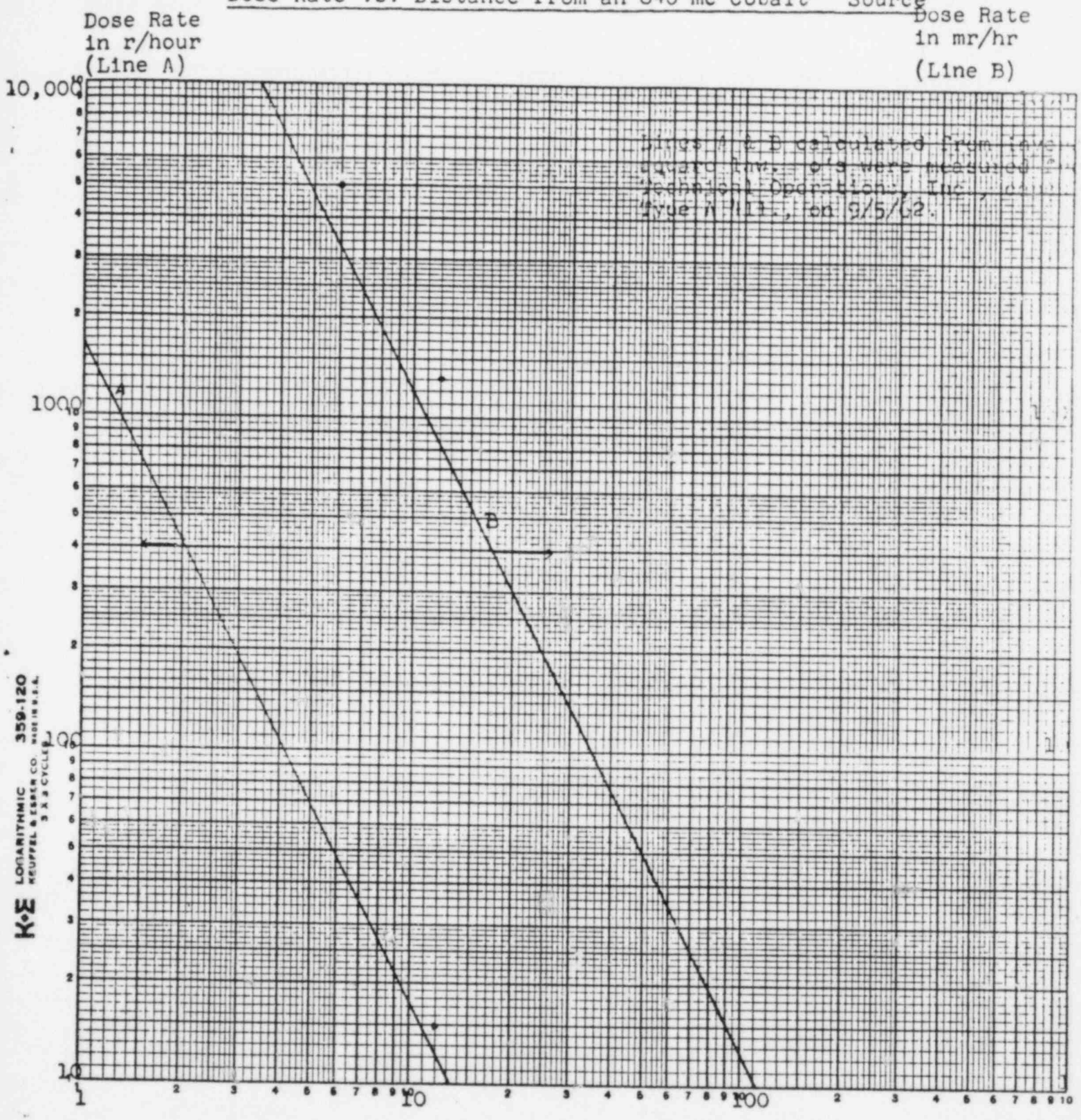
FIGURE 3

Dose Rate vs. Distance from an 840 mc Cobalt^{60} Source



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5. Each man entering the area of radiation must have a film badge and a dosimeter. Dosimeters must be read before hand and should be checked about every fifteen minutes to assure recognition of over dosage. Permissible dose limit is 100 mr/wk.

6. Thread the source and secure it when there is a possibility of losing it in the system. While performing this threading, make sure there is light to see by and a clean, ample place in which to handle the source.

7. Allowable time is sharply reducedat closer distances. Radiographers should never approach closer than a few feet from the source and under no circumstances whatsoever should he ever come close enough to touch it.

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9. All persons concerned should be aware of safe working distances and times. See figures 1 and 2.

10. Shielding should be provided to keep radiation levels as low as possible without interfering with the use of the source.

11. Source will be wipe tested by Environmental Research Laboratory at intervals not to exceed six months.

All sources must be plainly marked according to AEC regulations to warn transients of their presence.

Activity of the small source as of October, 1963 is 190 mc.

Calculated Radiation Levels from 190 mc Co^{60} Source

1 ft.	266 mr/hr
3 ft.	30 mr/hr
6 ft.	7.5 mr/hr
12 ft.	1.9 mr/hr

Normal Work Procedure Includes The Following: (Continued)

Radiation levels from the large source - 840 mc as of October, 1963

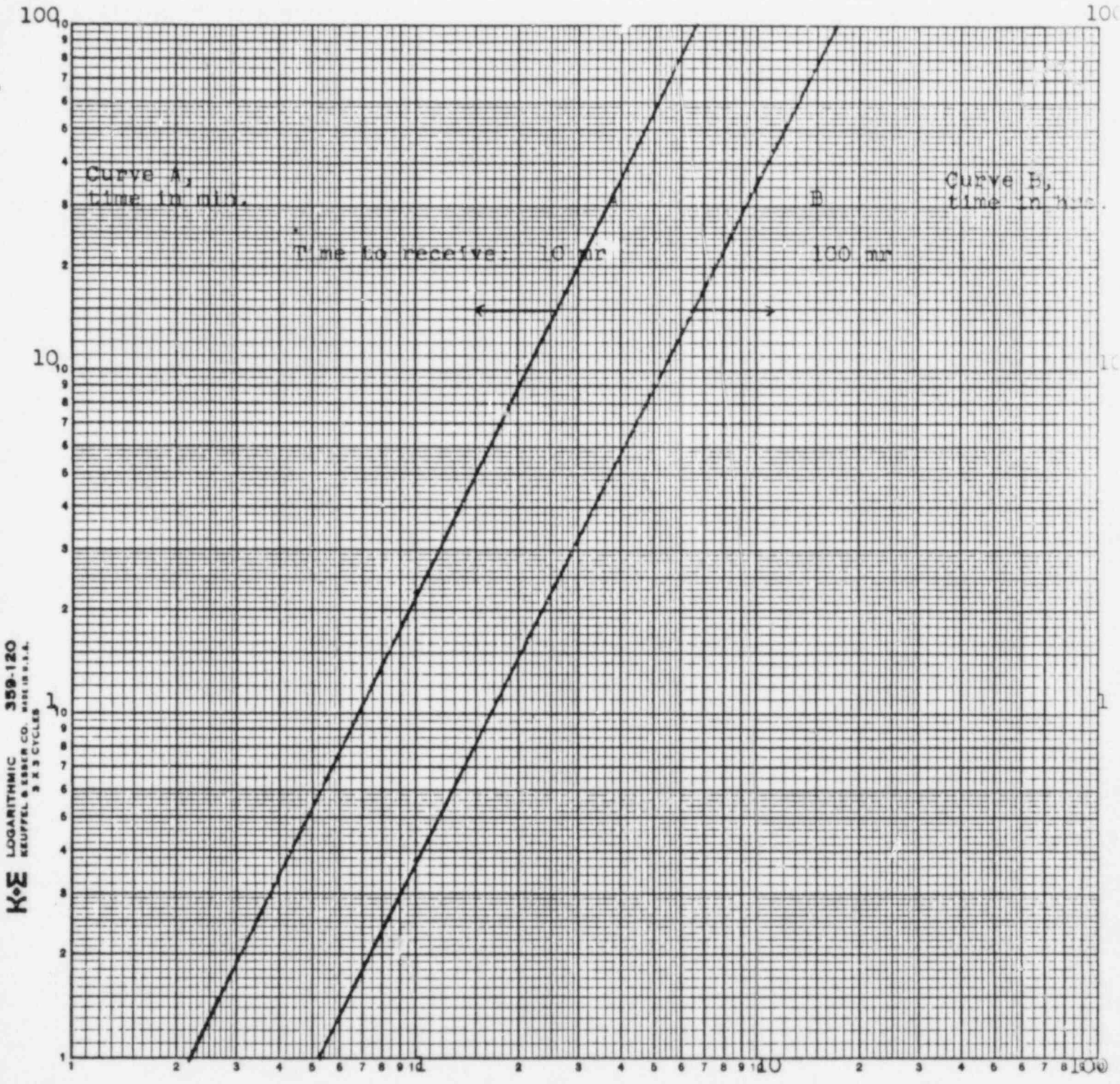
On contact - 1380 r/min.

(See attached Graph figure 2 for dose rates vs. distance)

LGS:sjl

FIGURE 1

Time to Receive 10 & 100 mr Exposure from 190 mc Co^{60} Source



DISTANCE FROM SOURCE IN FEET.

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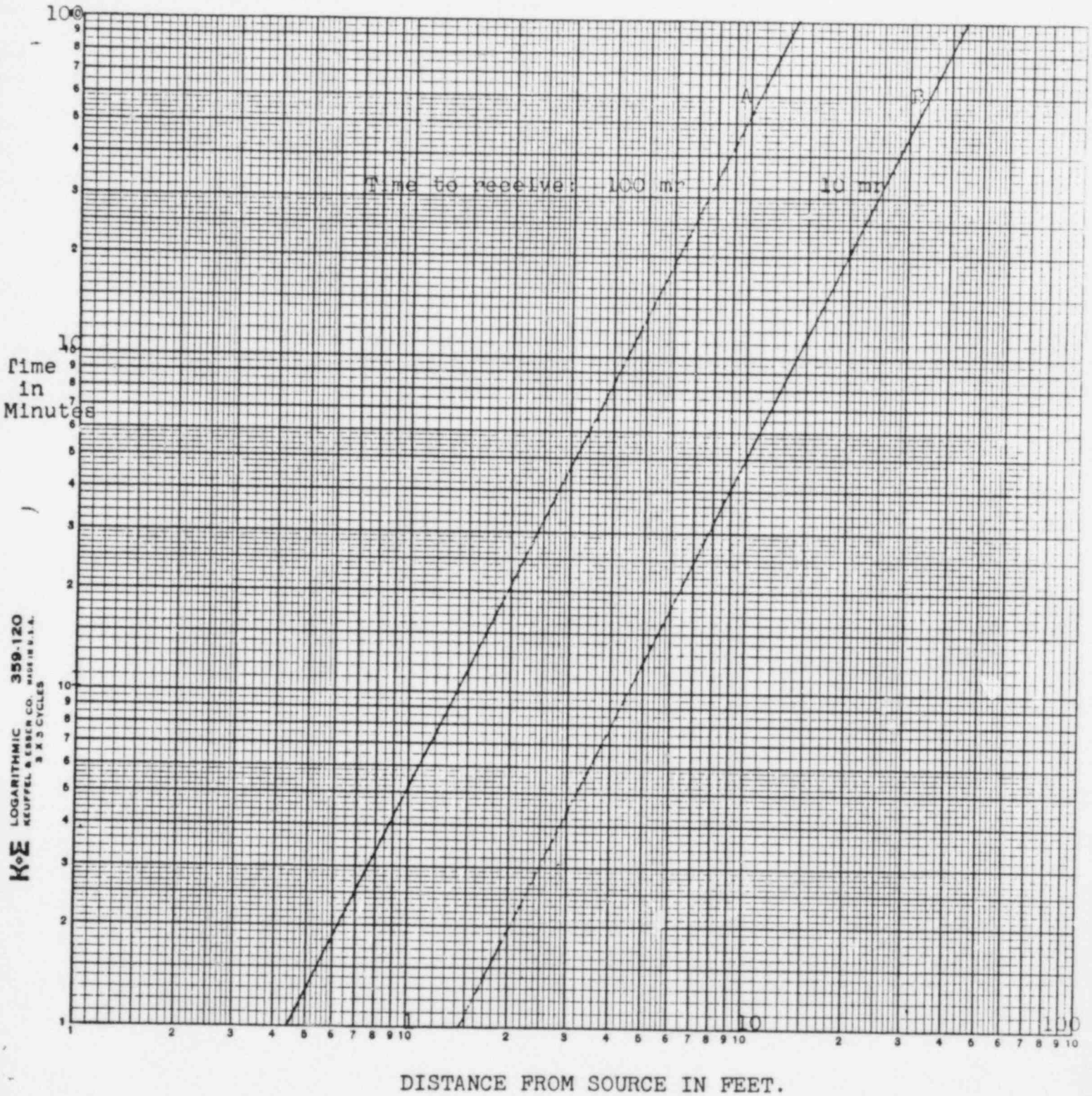
FIGURE 2

Time to Receive 10 & 100 mr Exposure from an 840 mc Co^{60} Source



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