

Date 7 March 1974

To R. W. McGinnis - Calvert Subject CALIBRATION CHECK OF
From M. H. Stermon - Calvert CENTURY ANALYZER.
() Take Action () For Your Approval (X) For Your Info () Discuss With Me
() For Your Comments () As Requested () File () Note & Return

In an effort to resolve the background reading on the Century analyzer, a study was made to compare the Century readings to gas chromatographic readings at different concentrations of VCl monomer in air.

This was done by taking a prepared cylinder of air pressurized to 400 lbs./in.² and containing 450 ppm of vinyl chloride monomer. This cylinder, along with a laboratory air line, were attached to a mixing cylinder. The sensing probes of the Century analyzer were inserted into the exit tube of the mixing cylinder and the flow rates of the cylinder containing the monomer and the air supply were adjusted until the desired reading was obtained on the Century analyzer. At this point, a sample was taken from the exit of the mixing cylinder and analyzed by GC. This result was compared to the reading obtained from the B.F.G. prepared curve we have been using for the Century analyzer.

Readings were taken at several points between 5 and 100 on the meter. It was found that by re-drawing the curve through the origin the data obtained from the curve was much closer to the GC data at the lower concentrations.

From the data obtained it appears that a meter reading of 9 is the lowest valid reading we can report. Any reading less than 9 should be reported as <10 ppm of VCl monomer. The results obtained are reported in Table I-A.

Four grab samples of varying concentrations were pulled from the PVC and Emulsion plants and analyzed by both the Century and GC. The results are reported in Table I-B. The difference between the Century and GC readings is due to the presence of small amounts of VAc and propylene in samples #1 and #2, and VAc and ethylene in samples #3 and #4.

The re-drawn curve is attached.


M. H. STERMON

MHS:dm

Attachments

cc: J. T. Barr - V.F.
J. D. Kramer
G. B. H. Speed

AP00040589

TABLE I-A

LAB MIXTURE

<u>Century Reading</u>	<u>PPM of VC1 from Curve</u>	<u>PPM of VC1 by GC</u>
5	7.5	0.0
7	10.0	2.5
9	13.7	12.5
12	17.5	17.0
22	34.0	35.0
51	80.0	80.0
100	150.0	150.0

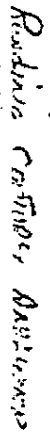
TABLE I-B

PLANT SAMPLES

<u>Century Reading</u>	<u>PPM of VC1 From Curve</u>	<u>PPM of VC1 by GC</u>
(a) Sample #1 27	44	31
(b) Sample #2 12	17.5	9.5
(c) Sample #3 51	80.0	76.0
(d) Sample #4 100	150.0	141.0

- (a) Air inside PVC Reactor.
- (b) Air going into Reactor.
- (c) 10 ft. from PVC pump between pump and fan in Emulsion Plant.
- (d) At exhaust fan in Emulsion Plant.

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AP00040591

LC: Buddy Stemon 1987/76
FYI Roy Mattison

From: Century Systems Corporation
P. O. Box 133
Arkansas City, Kansas 67005
Area Code 316 447-3311
Twx. No. 910-740-6740

Attention: V. Mattison

Air Sample Collector Tubes - The "FLARE"

ARKANSAS CITY, KANSAS - (April 1976) - A new stainless steel reusable sample collector tube from Century Systems Corporation has been designed for use in collection of air samples. The tubes are used in conjunction with a portable air sampling pump. These collector tubes are designed with a sealing flare on one end. The tubes can be provided with a variety of sorbent material; such as: charcoal, Tenax-GC or as fillable blanks. Porous metal end filters are utilized for maximum mechanical integrity of the tube.

Century's "FLARE" tubes are provided in two sizes, a front collector tube 3" long and a short backup tube 3/4" long. A special sampling and storage tube holder is provided for connecting the two tubes together in tandem and as a means of attaching the sample tubes on the person.

The reusable flare tubes are designed to be compatible with the Century Systems' Programmed Thermal Desorber (PTD), and can be dosed, desorbed and redosed many times.

AP00040592

From: Century Systems Corporation
P. O. Box 133
Arkansas City, Kansas 67005
Area Code 316 447-3311
Twx. No. 910-740-6740

Attention: V. Mattison

Programmed Thermal Desorber

ARKANSAS CITY, KANSAS - (April 1976) - A new concept in thermal desorption of air sample collector tubes provides high desorption efficiency, reduces sample degradation and provides means for multiple sample injection into a gas chromatograph. The sorbent material in the collector tube is heated convectively with purge gas (air or other) which is drawn through the tube with a mechanism similar to a large 300cc stainless steel syringe. The "syringe" purges the contaminant from the tube, starting immediately after the tube is inserted in an oven. After the desorption cycle the "syringe" retains the contaminant reconcentrated in a fixed volume of purge gas. Analytical size samples of this gas may then be manually or automatically injected into a GC for analysis. Replicate samples may be withdrawn from the "syringe" without sample dilution since the syringe piston self-adjusts. Calibration and calculation of time weighted average (TWA) are readily accomplished by factoring the PPM level measured on the GC, by the ratio of the volume of air sampled to the fixed volume (300cc) of the syringe mechanism.

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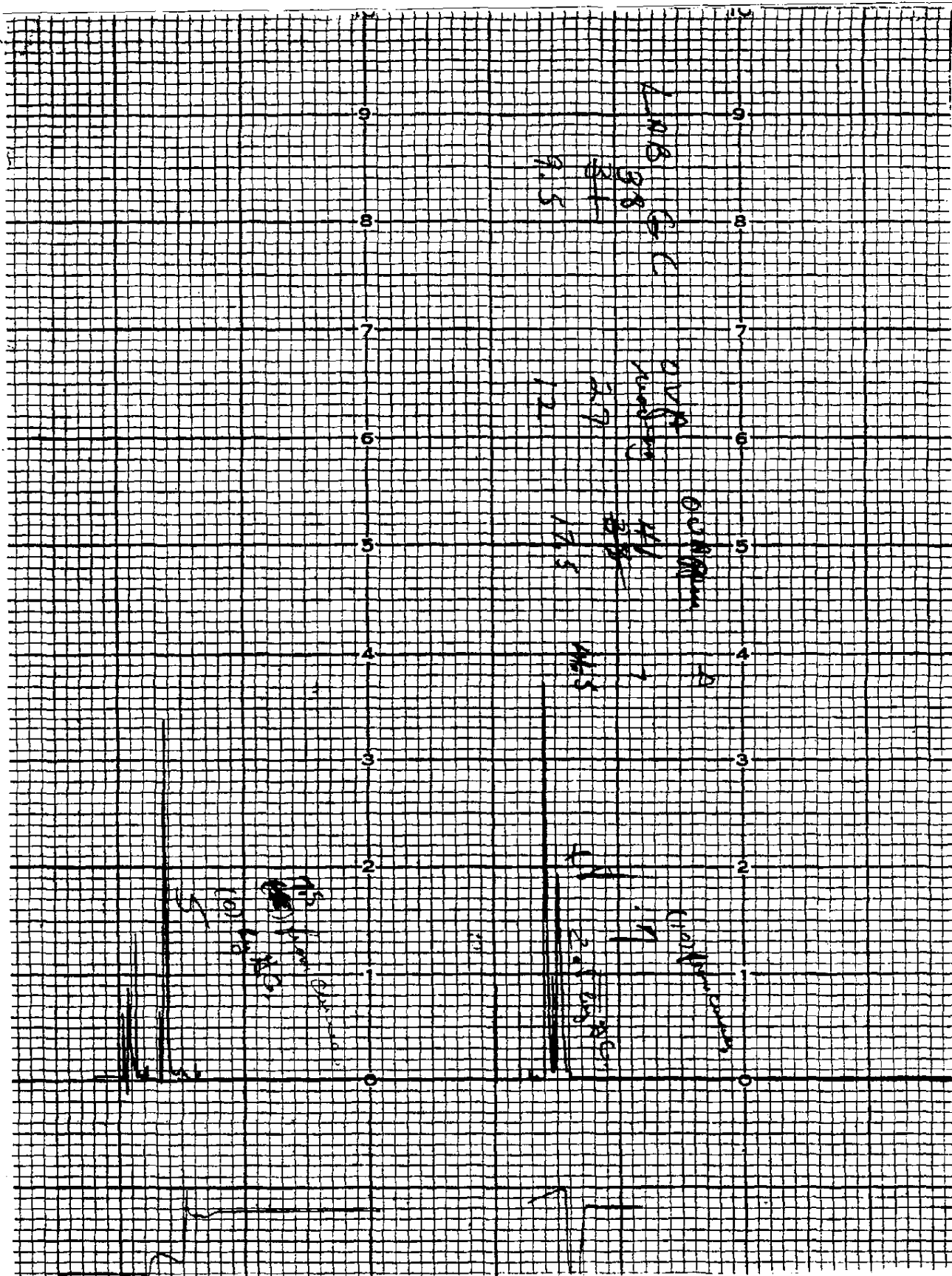
Century Reading	ppm from Century	ppm by LC
0	I-A.	
5	7.5	0.0
7	10.0	2.5
9	13.7	13.5
13	17.5	17.0
22	33.0	35.0
51	81.0	80.0
100	150.0	150.0

I-B.

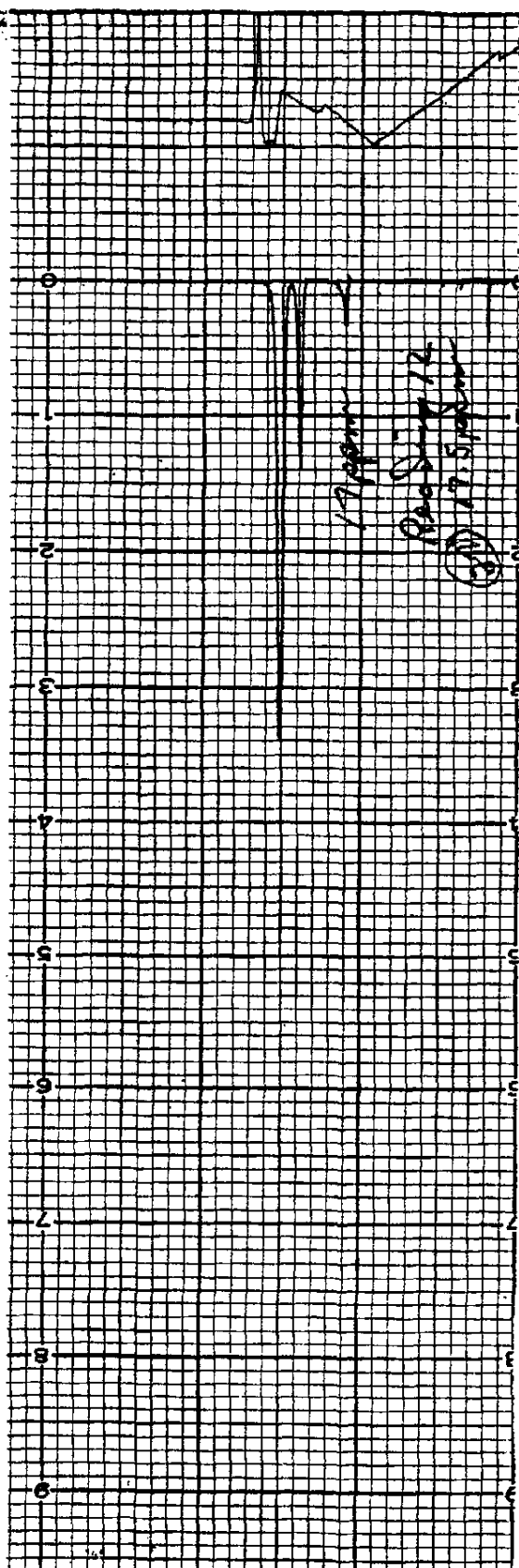
Sample 1 27 38 31

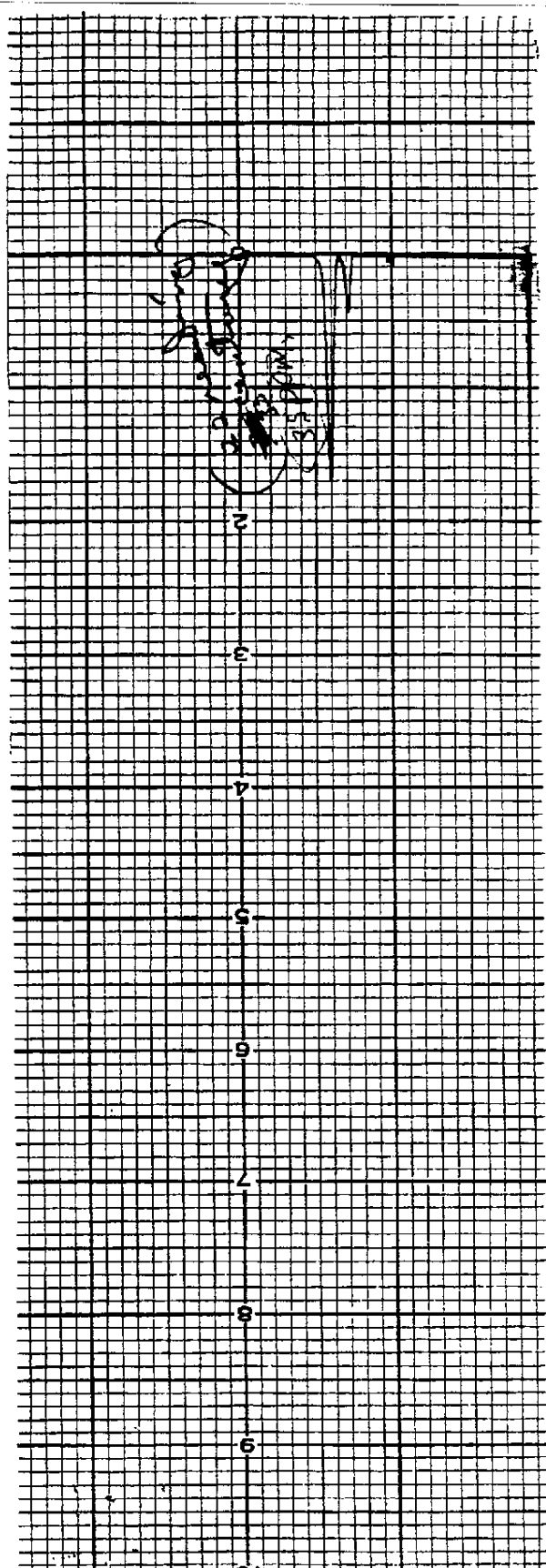
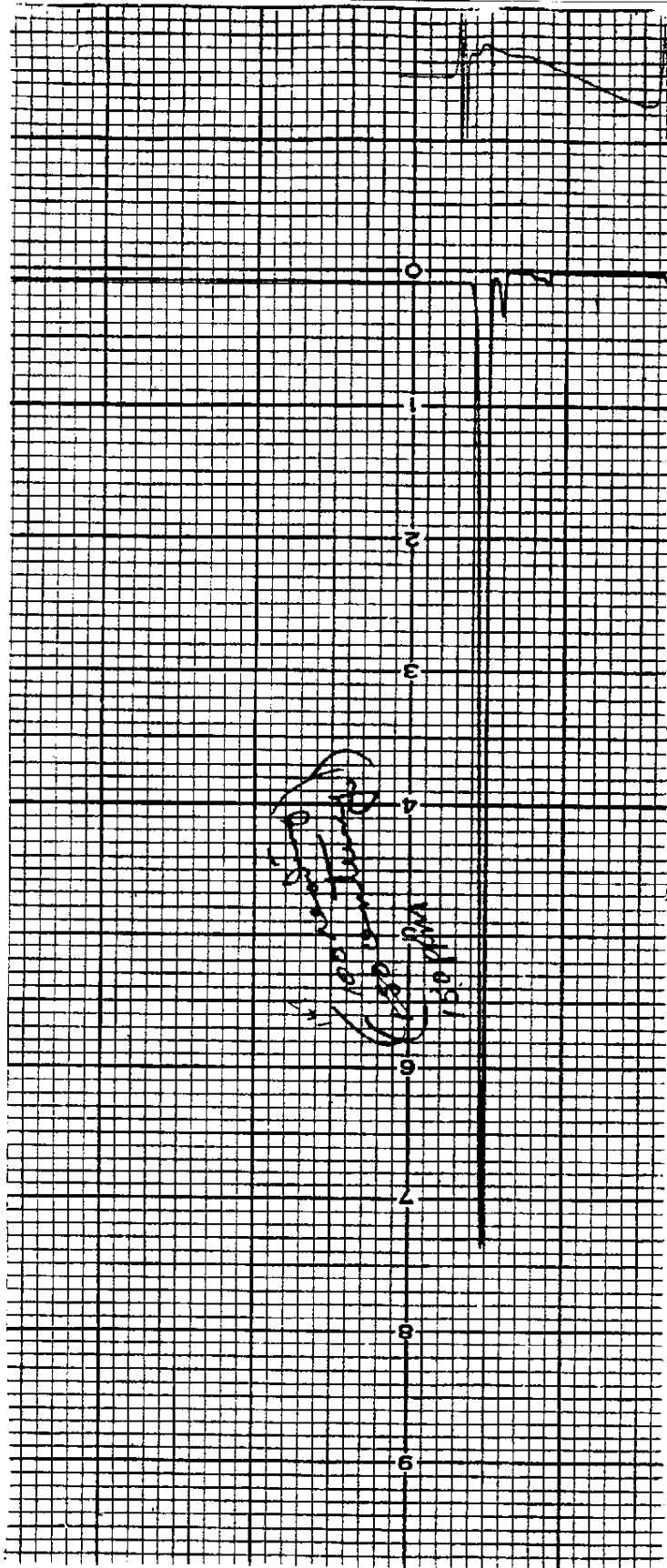
Sample 2 12 17.5 9.5

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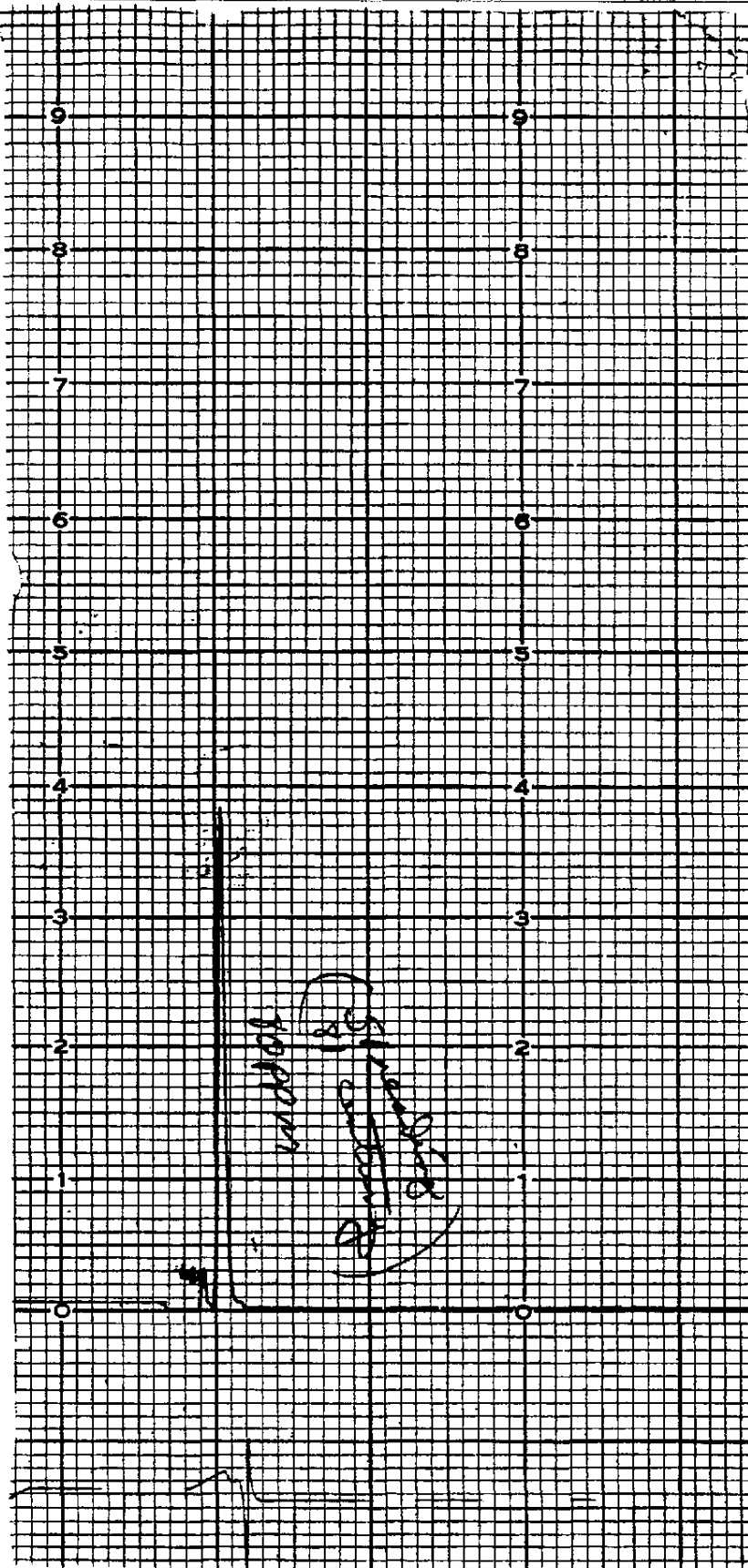


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