



JOSEPH E. BRENNAN  
GOVERNOR

STATE OF MAINE  
DEPARTMENT OF HUMAN SERVICES  
AUGUSTA, MAINE 04333  
PUBLIC HEALTH LABORATORY - STATION #12



MICHAEL R. PETIT  
COMMISSIONER

September 4, 1985

MS 16  
P7

Tom Thompson  
Nuclear Regulatory Commission  
Region I, Material Licensing Section  
631 Park Avenue  
King of Prussia, Penn. 19406

Dear Mr. Thompson:

The following information is provided in response to our phone conversation regarding application for an amendment to our License #18-2254-01.

All personnel will wear film badges during operation of the Shepherd Mark IV TLD Calibrator.

The CDV-700 meters which will be used for monitoring the TLD Calibrator are not calibrated by laboratory personnel but by the Bureau of Civil Emergency Preparedness. The meters are calibrated by a CDV-790 Calibrator in a manner prescribed by the Federal Emergency Management Agency. I have enclosed a copy of the procedure which they follow.

Our wipe procedure for the Shepherd Calibrator will be as follows. Filter paper will be moistened with alcohol and held with tongs for actual wiping. At least two areas of the instrument will be wiped: (1) the tray which holds the badges during exposure, (2) the outside of the instrument. Wipe tests will be done at intervals of not more than six months and permanent records will be maintained.

Following initial screening by the CDV-700 meter and drying, wipes will be evaluated using a 3"x3" NaI detector with a Canberra 1024 Channel Analyzer. Using this system the minimum detectable activity for a 50 minute count would be 15 picocuries. This detection system

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REG1 LIC30  
18-02254-01 PDR

03970  
"OFFICIAL RECORD COPY"

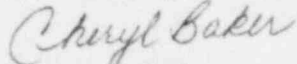
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itself is calibrated using standards obtained from the U.S. Environmental Monitoring Systems Laboratory - Las Vegas. A series of isotopes in appropriate geometry (in this case, a 2" planchette) are counted and an efficiency curve plotted. In addition to this annual calibration, a Cs-137 standard is counted daily and backgrounds are determined periodically.

Please advise if you require any additional information.

Sincerely,



Cheryl Baker

Chemist II

Public Health Laboratory

CB/jw

enclosure

**DRAFT**



OPERATION AND MAINTENANCE MANUAL

CDV-700 CALIBRATOR

ITEM CDV-790 MODEL NO. 1

VOLUME 7

CALIBRATION

FEDERAL EMERGENCY MANAGEMENT AGENCY

WASHINGTON, D.C.

84-2240153-7pp.  
**DRAFT**

SECTION 5


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OPERATION

5-1. OPERATION

5-1.1 In order to insure uniformity and precision in the calibration of CDV-700 instruments, the CDV-700 probe must always have the beta window closed and the external portion of the closed window must always be facing up.

- a. Unlock and remove the locking bolt from the calibrator after the conduct of the radiation exposure-rate check procedure (section 3-3).
- b. Be certain the attenuator slides are fully open, then remove the lead filled brass plug from the opening between the "V" block stops.
- c. Immediately close the slides.
- d. Turn on the CDV-700, place the CDV-700 probe in the "V" block in the table of the calibrator and wait at least 30 seconds or longer for the system to reach stability. The tip of the probe should be squarely against the "V" block stop. Note: Make certain that the "radiation area" card is in the clip of the rear "V" block.
- e. Turn the switch on the CDV-700 in the X-100 position, slide all attenuators out (in the open position) and observe the meter response on the CDV-700.
- f. Adjust the CDV-700 calibration potentiometer so that the meter response is at the exposure rate as given in the calibration chart

for this calibrator unit; and has been corrected for decay. The initial output exposure rate of the calibrator and the reduction factor of each attenuator has been calculated by the FEMA Radiological Instrument Test Facility. The output exposure rate is known to be within  $\pm 5\%$  of the NBS Roentgen. This data is provided on Figure 5-1, Data Sheet #1. 

g. Slide the top (No. 1) attenuator "in" fully against the stop and observe and record the reading obtained. The exposure rate with this slide "in" will be approximately  $2/3$  of that given in Step f. Record your meter reading on the data sheet provided on Figure 5-2.

h. Slide the top (No. 1) slide "out" and then slide the middle (No. 2) slide "in". The exposure rate will be approximately  $1/2$  of that given in Step f. Record your meter reading on the data sheet provided on Figure 5-2.

i. Leave the middle (No. 2) slide "in" and also slide the top (No. 1) slide "in". The exposure rate will be approximately  $1/3$  of that given in Step f. Record your meter reading on the data sheet provided on Figure 5-2.

j. Place the top (No. 1) and middle (No. 2) slides "out" and place the (No. 3) bottom slide "in". Switch the CDV-700 to the X-10 range. The exposure rate will be approximately  $1/10$  of that given in Step f. Record your meter reading on the data sheet provided on Figure 5-2.

k. By leaving the bottom slide in and manipulating the top (No. 1) and middle (No. 2) slides as given in Steps g, h, and i; exposure rates of approximately  $2/3$ ,  $1/2$  and  $1/3$  full scale may be obtained for this range. Record your meter reading on the data sheet provided on figure 5-2.

1. The CDV-790 Model does not provide any rates for the X-1 range of the CDV-700 instruments.

Data Sheet #1 Provided by FEMA Radiological Team

Calibrator Model No. 1 Serial No. \_\_\_\_\_ within  $\pm$  5% of the NBS reagent

11/11/11

[illegible]





DATE 8/20/85

TELEPHONE OR VERBAL CONVERSATION RECORD

TIME 1325 ☐ A.M. ☐ P.M.

☐ INCOMING CALL

☒ OUTGOING CALL

☐ VISIT

PERSON CALLING

Thompson

OFFICE/ADDRESS

RI

PHONE NUMBER

EXTENSION

5303

PERSON CALLED

Cheryl Baker

OFFICE/ADDRESS

Public Health Lab  
State of Maine

PHONE NUMBER

EXTENSION

(207) 289-2727

CONVERSATION

SUBJECT

Additional info. required for Amendment (see attached sheet)

SUMMARY

Cheryl indicated she wanted to perform leak tests for others. I told her she would need a service license. She will submit fee and info.

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REFERRED TO:

ACTION REQUESTED

ACTION TAKEN

☐ ADVISE ME OF ACTION TAKEN.

INITIALS

DATE

INITIALS

DATE



- 1) Film badges not indicated in Supplement L. Do you have them?
- 2) ☒ Specific Training for use of TLD indicator has not been addressed. (Read manual etc)
- 3) Calibration procedures for CDV 200 is not adequate. Please submit step by step procedure
- 4) Leak Test <sup>procedures</sup> not described. Provide procedure, equipment used, calibration procedure for equipment if you want a service license.

(301) 492-4650