GEIGER MULLER SURVEY INSTRUMENTS USED FOR BACKGROUND DETECTION IN EPZ

NOTE: This section details the Geiger Muller Survey Instruments that may be used for Background Radiation Detection at a Local EOC and other state agencies.

1. CD V-700/VIC-493 Operational Check:

NOTE: Prior to use the CD V-700 or VIC-493 must be checked to ensure that the instrument is operating properly. This operational check must be performed in an area away from any source of radiation.

- Visually check the instrument for signs of physical damage.
- Ensure a calibration sticker is present on the instrument and the current calendar date is within the year of the calibration date.
- Ensure the selector switch on the instrument is in the **"OFF"** position.
- Make sure that the instrument probe is secured in its cradle or place probe on a secure surface first and then remove the top cover of the instrument by unlatching the cover clips located at the top and bottom of the cover.
- Turn the cover over exposing the battery compartment. Remove the battery clamps and install the batteries **making sure of polarity**. Reinstall the battery clamps. Install the instrument cover back into the instrument body and secure the cover clips.
- Turn the selector switch on the instrument to the x10 setting and allow the instrument a minimum of 30 seconds to warm up.
- Connect the headphones to the audio jack located to the left of the instrument probe cradle.
- Remove the probe from the probe cradle and rotate probe cylinder head to fully open the probe window (CD V-700) or push the base of the probe forward (for VIC-493). Mount the headphones on your ears.
- Place the open probe as close as possible to the operational check source located on the left side of the instrument body. Observe the reading on the instrument C/M scale (multiply it by 10) and compare to the Source Reading Range located on the instrument calibration sticker. Clicks should be heard in the headphones.
- The reading should fall within the Source Reading Range. This indicates that the instrument is operating properly.
- If the operation check fails you may:
    - Install new batteries and recheck the instrument if the source reading is too low.
    - Replace the headphones if no clicks are audible when taking the check source reading.
    - Discard the instrument and replace it with another and perform the operational check again.

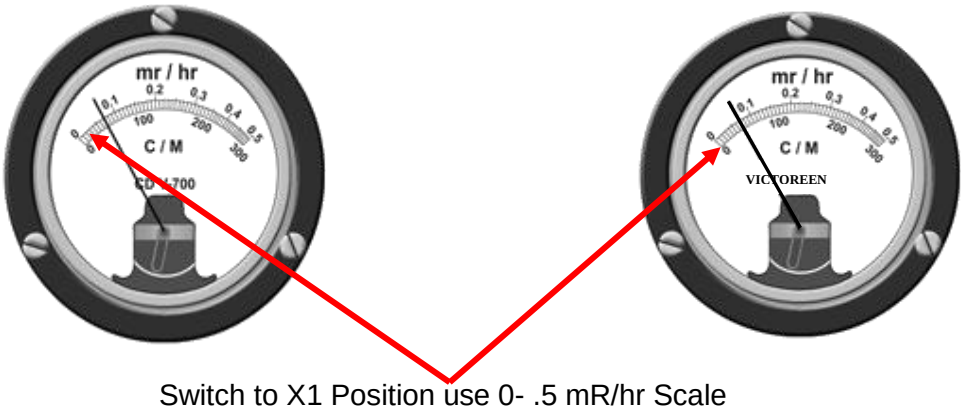
2. Background Measurement Using CD V-700 or VIC - 493:

NOTE: Background radiation is the sum of the radiation from natural and unnatural sources without any contribution from the radioactive source of interest, such as hospital, nuclear power plant or accident site.

- Locate the instrument away from the source of interest.
- Install the batteries into the instrument observing the polarity of the batteries.
- Set the instrument selector switch to the x1 setting. Allow meter to warm up for approximately 1 minute.

- Hold the survey meter probe at waist level away from body. Observe the meter reading on the meter dial for at least 30 seconds.
- Background radiation is usually under .1mR/hr. read on the survey meter mR/hr (top) scale (Reference Meter Face Diagram and Switch Position Meter Reading Table 1 below).
- Take normal background readings in the EOC periodically and record them in an EOC Background Radiation Log. The log may be used to find a normal average EOC background radiation reading as reference when needed. Keep this log updated so you have your average background radiation reading at any given time.
- During a radiological event when the EOC is activated monitor your background radiation level.
- If at any time during the event your EOC background radiation level increases to twice the normal average EOC background radiation level notify the Radiation Health Official at the state EOC.

CD V-700 VIC - 493



Switch to X1 Position use 0- .5 mR/hr Scale

Table 1
CD V-700/VIC 493 Switch Position & Scale Description

	mR Scale on Top of Deflection Marks	
Switch Positon	Each Deflection Mark/RAD	RAD Activity Range
x1	.01 mR/hr	0-.5mR/hr
x10	.1mR/hr	0-5 mR/hr
x100	1mR/hr	0-50 mR/hr