Radiation Detection Instruments

The government has chosen to destroy the last visage of civil defense in America by cutting all funds for radiological monitoring. FEMA has offered to pay for the return and storage of these radiological instruments. They will all be sent to somewhere in Texas. Our sources tell us the meters will be stored for one year and then sent to the land fill. It may be too late, but try to contact your local emergency management people and offer to store these valuable instruments for them. Some states, such as Oregon, and Arizona have been successful in this endeavor.

SURVEY METERS

Survey meters are used to monitor radiation exposure rates. Like the speedometer in your car, which tells you how fast you are going, the survey meter tells you how fast you are receiving radiation.

A. Geiger meuler tubes

The Geiger Mueller tubes are normally used for low range radiation detection. They are quite sensitive, but not very accurate. We sometimes call them Geiger counters and they were widely used for hunting uranium ore. They are also used for training purposes where low radiation exposure rates will be encountered.

On the outside of the box you often find a probe about 3/4 inch in diameter and 4 inches long connected to the box with a cord. When opened, the probe gives the meter the capability of reading beta radiation. Sometimes there is a headphone supplied with this instrument.

Inside the box, you will find a tube. Typically this tube is about the diameter of a pencil and 3 or 4 inches long; or the size of the diameter of a dime and about 3 inches long.

There are a number of the ANTONE 106-101 CDV-700 around that have been declared surplus by the government. They are a highly sensitive, low range instrument. They can measure gamma radiation and discriminate between beta and gamma radiation.

They have the larger (dime size) Mueller tube. They have a range (full scale deflection) of only 0 to 50 milliroentgens. Don't believe anyone who says they can be adjusted to read roentgens. The tube will saturate at 1000 milliroentgens (one roentgen). This means the reading on the scale will reach the full length of its range and stick at the far end of the scale until turned off. We then say that it has "pegged out" or "jammed". It will recover shortly after being turned off.

To increase the range of this unit, a smaller diameter tube or a lead shield probe must be installed. This is very expensive, and the reliability is questionable. In a war time situation, we must have a reliable unit.

By using a potentiometer, you can adjust the scale to read as much as 3 X scale (150 milliroentgens).

Even this, however, is not near large enough a reading for war time purposes. You could use this unit for checking food, clothing, etc. for beta contamination , but I believe your money would be better spent on a unit with a wider range capability.

I would not recommend this unit. You need the capability to read 50 or even 500 roentgens per hour for war time purposes.

B. Ion Chambers

The other basic detecting instrument for a survey meter is an ion chamber. With the lid of the meter opened, the ion chamber looks like and is about the size of a can of chewing tobacco-- apx. 2 inches in diameter and 1 inch thick. An ion chamber has the capability of reading roentgens, and is the meter we want for our shelters.

This unit only reads gamma radiation, and is designed for post attack operational use. It typically has a full scale deflection of 0 to 500 roentgens. To reach these levels of detection there would probably be four multiplying scales of .1, 1, 10 and 100.

Currently, the government is using the CD V-715. There are a few of these for sale, but the government, in some cases, may claim them as stolen property. Question where this meter was obtained before buying it.

The CD V-710 is now obsolete and can be bought legally. If in doubt about any meter offered for sale, call the state Comprehensive Emergency Management Office.

Always question whether the meter for sale has been hardened against EMP and if it will function in an electromagnetic field.

DOSIMETERS

Dosimeters come in many sizes and shapes. The dosimeters used by the government look like a short, fat yellow pen. They are designed to tell you your continual exposure. Like the odometer on your car which tells you how many miles you have driven, the dosimeter tells you how much radiation you have accumulated.

The dosimeters I have seen only detect gamma radiation.

For post attack use, don't buy a dosimeter that has a range in milliroentgens only. It would be useless to you. The dosimeters in that range are used for training purposes, only. A dosimeter in the range of from 0 to 200 roentgens would be the most desirable in the eventuality of a nuclear attack.
