



THE DOW CHEMICAL COMPANY

MIDLAND, MICHIGAN 48640

KEY POINTS CARD FOR TECH/OPS MODEL 525 INDUSTRIAL GAMMA RAY PROJECTOR

ANY MALFUNCTION OF, OR DAMAGE TO, THE SOURCE, ITS CONTAINER AND ASSOCIATED EQUIPMENT, OR THE RADIATION SURVEY METER, DOSIMETERS AND FILM BADGES, MUST BE REPORTED IMMEDIATELY TO WELDING ENGINEERING SUPERVISION AND INDUSTRIAL HYGIENE. SOURCE IS NOT TO BE USED UNTIL MALFUNCTION OR DAMAGE IS CORRECTED.

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 - Wire, ladder or scaffold, spring, rope and film holding devices.
3. Protection - Rope and radiation signs, warning blinker light, tarpaulin, canvas, polyethylene film, pliers, lead sheets.

You should know:

1. The nature of any hazards existing in your work area.
2. Where safety and eye showers are located.
3. Where the nearest telephone is.
4. Which men are near and who their supervisor is.
5. The location of congested areas, escaping gases or fumes, stairways, floor gratings, sewers and openings in the floor.

Normal work procedure includes the following:

1. Lift the lead shielded container properly, keeping your back erect and using your legs.
2. Inform supervision and persons in the area that you will be using a radiation source which requires that part of the area be roped off.
3. Rope off a practical exclusion area, post it with radiation warning signs, and measure the radiation levels at the barrier with the Eberline Model E-120G survey meter. If possible, adjust the barrier so that the level at the rope is 2 mrem/hr or less. If it is not practical to attain this maximum by adjusting the rope or shielding the source, patrol the region and warn people away from the rope.
4. Each man entering the area of radiation must have a film badge and a dosimeter. Dosimeters must be read beforehand and should be checked about every fifteen minutes to assure recognition of overexposure. The permissible dose limit is 1250 mrem/calendar quarter.
5. Radiation intensity increases rapidly as you approach the source. Radiographers should not approach closer than a few feet from the source and under no circumstances whatsoever should they come close enough to touch it.
6. To keep personnel exposure to a minimum, the complete exposure setup is made before any radioactivity is handled. Objects to be inspected, film holders, penetrameters, and identification are all in place and the source setup firmly located, before the source is reeled out.
7. Shielding should be provided to keep radiation levels as low as possible without interfering with the use of the source.

8. The source will be wipe tested by Industrial Hygiene at intervals not to exceed six months.
9. All sources must be plainly marked according to AEC regulations to warn transients of their presence.

Inspection and Maintenance Program for the Cobalt-60
Source Equipment and Storage Cabinet

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- A. The radiographer shall complete an equipment inspection check list each time the source is used. The check list shall be completed prior to performing any radiographic exposures and will include the following items:
 1. Date of removal.
 2. Time of removal.
 3. Maximum mrem/hr in storage.
 4. Maximum mrem/hr reseal.
 5. Any damage to storage cabinet or its shielding material.
 6. Storage cabinet properly labeled.
 7. Proper operation of source indicator.
 8. Any drive cable tube damage.
 9. Any source guide tube damage.
 10. Proper operation of source locking mechanism.
 11. Any damage to portable cart.
- B. The equipment shall be inspected and maintenance performed, both preventive and corrective, at intervals not to exceed three months, to determine the extent of equipment deterioration and whether operation has been affected by wear, corrosion, or physical abuse. A record of the date

and results of such inspections shall be entered in the source usage log book. These periodic inspections shall consist of all the items listed in Part A, above, plus a check of the following:

1. Changes in operating characteristics of the device.
2. Proper operation of the crank mechanism.
3. Source and drive cable wear.
4. Source and drive cable tube and connector wear.
5. Clean and lubricate drive cable and connectors if necessary.
6. Clean any rust, dirt, or sludge buildup in the source tube.
7. Proper connection of all mating components.
8. Cable drive gear box damage or wear.
9. All defective and excessively worn components shall be repaired or replaced.

C. Special, nonroutine inspections of the equipment shall be performed at appropriate times, such as exposure of the equipment to unusually severe stress or at any time it is felt damage might have occurred. These inspections shall consist of any or all of the checks listed in A and B, above, to determine the extent of any damage. A record of the date and results of such inspections shall be entered in the source usage log book.

L. G. Silverstein
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