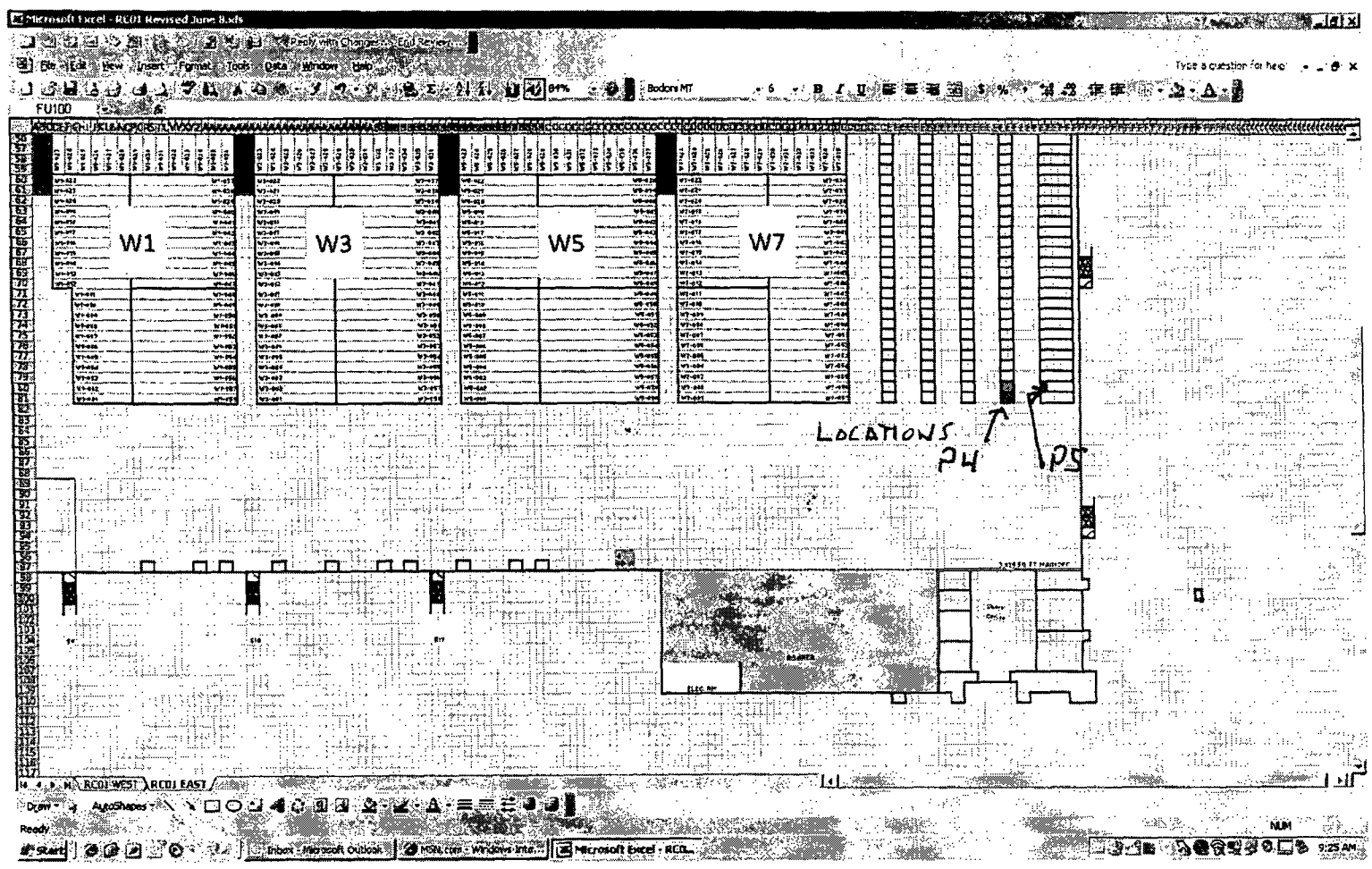
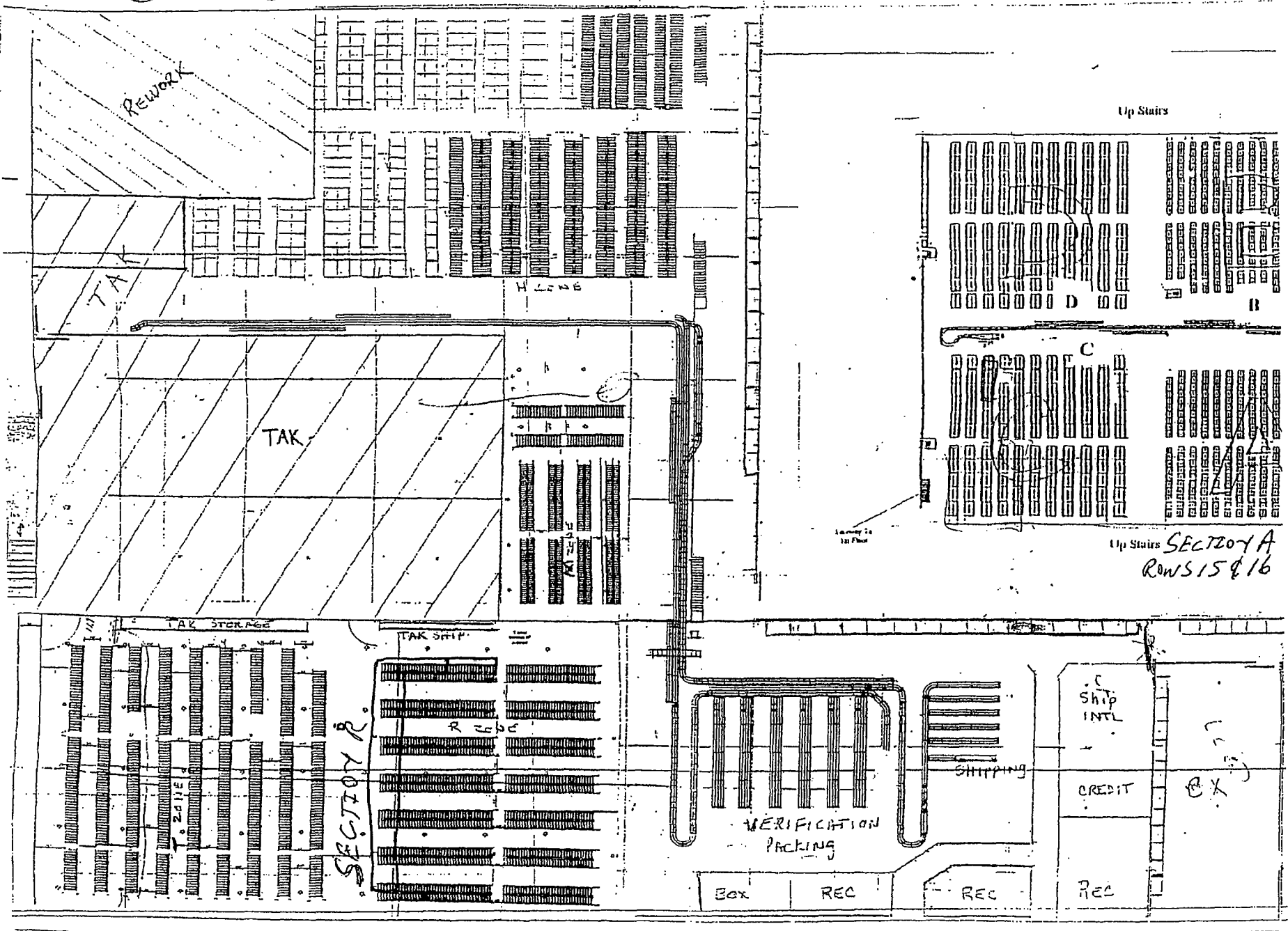


RAYCHO CUCAMOYLA, CA



ROMEOVILLE, IL



Radiation Safety
Manual for Sharp
Electronics
Corporation
Facilities

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1) Policy

Sharp Electronics Corporation's Policy Towards Exposure to Radiation

It is the policy of Sharp Electronics Corporation, that the release of radioactive material and the exposure of people to ionizing radiation be kept **As Low As Reasonably Achievable (ALARA)**. The **ALARA** policy is based on the following three principles:

1. Exposures of personnel to radiation or the release of radioactive material to the environment may not exceed the limits in the federal and state regulations.
2. Unplanned exposure of personnel or uncontrolled releases to the environment that could exceed 10% of permissible limits will be investigated to determine whether the exposures or releases were **ALARA** and whether action is required to limit future exposures or releases.
3. Exposures and releases that do not exceed 10% of the permissible limits are low enough that no further consideration of **ALARA** is necessary.

2) **Radiation Safety Officer (RSO)**

Corporate Radiation Safety Officer

The Corporate Radiation Safety Officer (RSO) is responsible for ensuring the safe use of radioactive material at all Sharp Electronics Corp. locations. The Corporate RSO is responsible for managing the radiation safety program; identifying radiation safety problems; initiating, recommending, or providing corrective actions; verifying implementation of corrective actions; and ensuring compliance with all applicable regulations .

The responsibilities of the Corporate RSO include, but are not limited to, the following:

- Read, be familiar with, and comply with all sections of these Rules and Procedures.
- Ensure that all Facility RSOs complete all required radiation safety training.
- Arrange for proper storage and disposal of radioactive material waste.
- Maintain copies of inventory records of radioactive materials for each licensed facility as provided by each of the Facility RSOs.
- Arrange for termination of licenses when no longer required.
- Coordinate with warehouse personnel to ensure:
 - personnel exposure to radioactive material as low as reasonably achievable.
 - all persons using radioactive material have completed all required radiation safety training.
 - that notification be given to the Corporate RSO immediately in the event of any radiological emergency, fire, contamination, flood, etc. and must provide all possible assistance with regard to prevention of hazards from radiation exposure.
 - all current records of the radioactive materials are maintained at the facility.
 - proper storage of all radioactive materials.

- classification of radioactive waste, as required by these rules prior to the collection of the waste for disposal.

- prompt response to requests for an itemized inventory of the facility's store of radioactive material.

- immediate initiation of cleanup of any broken sources and dispose of radioactive waste in an approved manner.

- that storage of sources, the area and containers for waste are properly labeled.

3) Sources and Source Material (Krypton 85)

Krypton-85 is a radioactive gas found in the atmosphere and produced by nuclear explosions, nuclear power plants, volcanoes and earthquakes. Krypton-85 is odorless, colorless and tasteless and emits low level radiation levels of both gamma and beta rays. Krypton-85 is usually produced in gas mixtures with argon or xenon to improve the ionization in light bulbs by reducing their starting voltage. It also is used in plasma displays, spark gaps and for leak detection.

Krypton-85 decays by beta decay into rubidium-85, with a half life of 10.756 years and a maximum decay energy of 0.687 MeV.

The subject of this license is an electron tube. The tube is within the class of products specifically exempted from certain licensing requirements by operation of § 330.40 (c) (1) (G) (iii) because it contains less than 30 microcuries of Krypton-85 (Kr-85) and radiation levels do not exceed 1 millirad per hour at a distance of 1 centimeter when measured through 7 milligrams per square centimeter of absorber.

The electron tube is designed to function as a projection lamp in a front video projector. Each tube contains approximately 0.02 kBq/0.54 nCi of Kr-85. The outer envelope of the electron tube consists of quartz glass which is fused to close each end to form a cylinder approximately 52mm long, and 10.5mm in diameter. The electron tube will not operate if the seal is imperfect or the glass envelope is cracked or otherwise compromised.

This license encompasses possession, temporary storage and distribution of the electron tube itself and front projection units containing the tube.

The inventory of lamps varies as incoming and outgoing orders are filled. The facility's total inventory will never exceed 50 microcuries.

4) Waste Storage

The only waste generated by SEC is defective lamps that may be occasionally returned by servicers and lamps damaged at SEC during handling. The defective lamps are stored in a labeled container. When a lamp is placed in the container, a log is filled out documenting the date and number of lamps deposited. The number of discarded lamps are taken into consideration when determining the total number of lamps and the possession limits of the license.

5) Waste Disposal

Defective lamps are stored in a labeled container. The number of discarded lamps are taken into consideration when determining the total number of lamps and the possession limits of the license.

The lamps will require disposal when:

- the container is near capacity or
- the total number of lamps in the facility (including inventory and defective lamps) is approaching the possession limits or
- the possession license is terminated.

If disposal is necessary, the Corporate RSO will contact a licensed waste management company to make arrangements for proper disposal.