



SA-09-90

DATE: May 15, 1990

TO: All Facility Safety Heads
All Facility Coordinators
All Contractor Safety Representative

FROM: 429/Safety Manager, Head, Safety Engineering Branch,
SSQRD

SUBJECT: Inspection of Microwave Ovens

Microwave ovens have been periodically inspected at LaRC over the last several years to check for leakage in excess of microwave radiation health standards.

The history of microwave oven leakage problems, both at this Center and in other agencies, has been recently reviewed. Periodic surveys of the small home use style microwave ovens are no longer required. Individuals responsible for home use type microwave ovens at this Center may still request special surveys of their ovens if they feel they may have a microwave oven radiation leakage problem.

Periodic inspections of large industrial use (walk-in, etc.) special purpose microwave ovens are still required.

The historical background on microwave oven radiation hazards leading to this action can be found on the back of this notice.

If further information is desired, you may call Phillip Babb at extension 43210.

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BACKGROUND, MICROWAVE OVEN RADIATION HAZARDS

- In the late 1960's, home use microwave ovens operating at 2450 megaHertz became increasingly popular.
 - Government surveys of these ovens showed some leakage around the doors and resulted in federally sponsored programs for periodic inspections and recommendations for home user inspections.
 - Leaks found generally decreased rapidly with distance (minimal hazard at one foot away) and were only narrow in beam width (less than 1/4" wide). Most problems were found at door opening (opening the door while the oven was still on).
- Federal legislation in the early 1970's resulted in a program requiring a more stringent leakage prevention standard by manufacturers. The Federal Standard set a new oven performance radiation criteria that was more stringent than the health hazard standard. This standard resulted in better doors (mechanically and electronically) that eliminated the transient leakage problem. Most manufacturers had already been actively working the door problem and met the new standard.
- Also in the early 1970's, a problem with electromagnetic interference of a cardiac pacemaker from one manufacturer was noted in a few instances. The Florida based manufacturer of the pacemaker redesigned its device (which was only designed for a few years battery use anyway) and by the mid 1970's the possibility of interference was eliminated. During this period, however, pacemaker warning signs were recommended as a precaution. The need for these caution signs was terminated in the later 1970's.
- In the 1980's, the periodic oven inspection program was reevaluated by its sponsor, the U.S. Government's Center for Devices and Radiological Health in Rockville, Maryland. The reevaluation resulted in the periodic inspection program being terminated.