

Rep. James J. Howard (D-NJ), said he would initiate immediate legal action

At Fort Monmouth, a total of 740 civilian jobs will be affected, 516 by

struction to disapprove the needed funds for the transfer. •• SLK

Direct-contact diathermy probes found safer

Unnecessary radiation exposure can be more easily controlled with the new generation of direct-contact applicators than with the conventional spaced applicators presently in general clinical use, concludes a study of microwave diathermy recently conducted by the Division of Electronic Products at the Bureau of Radiological Health, Rockville, MD.

The BRH study compared the performance of spaced and direct-contact applicators in the industrial-medical-scientific band centered at 2.45 GHz. Four commercially available spaced applicators were pitted against several direct-contact versions, including a square-aperture horn, circular-aperture horn, circular waveguide and rectangular waveguide loaded with a Teflon slab.

Electric field measurements of scattered radiation showed that the leakage from the loaded rectangular wave-

guide direct-contact applicator was less than 5 mW/cm² with 100 watts of forward power, while scattered radiation from a commonly used spaced applicator ranged as high as 30 mW/cm² at the same drive level. Leakage radiation from a circular-aperture horn applicator is almost negligible, the BRH study reports, "demonstrating that design techniques for minimizing unwanted radiation from direct-contact applicators are available."

The measurements, made on phantoms of simulated human fat and muscle tissue, included an evaluation of the heating patterns induced by the different types of applicators. The goal: to determine whether uniform instead of peak heating could be achieved (see, "Microwaves score TKO in fight against cancer," *MicroWaves*, p. 14, October, 1976). Results indicate that uniform heating of a treatment area "could easily be accomplished through

the use of direct-contact applicators with unloaded or uniformly loaded rectangular waveguides."

Although the technical advantage of direct-contact diathermy applicators appears to have been demonstrated, the laboratory evaluation did not include clinical tests. Direct-contact applicators are not yet available for high-power therapy at 2.45 GHz; some designs have been developed for lower frequencies. But the low-leakage applicators might well become a necessity for all diathermy equipment if Federal plans to reduce leakage standards are carried through. BRH is presently evaluating industry comments to a revised standard which would slash allowable leakage levels from 30 mW/cm² to 5 mW/cm². Manufacturers are balking at this drastic change, however, citing the increased costs associated with the design, development and fabrication of the new applicators. SVB

[to patient and operator]

Add *Slaker*

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