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FOLDER

August 25, 1961

Dr. C. E. Falk

Dr. E. E. Stickley

AEC letter - August 1961

Medical Research Reactor

This month the neutron capture therapy procedure was used in the treatment of one patient. In other aspects of this investigative program, phantom studies and calibrations were also carried out, and canine osteogenic sarcoma was treated, and a single series of mouse mammary tumors was irradiated in vivo. Interesting preliminary results have been seen in the experiments on radiation influence on response to growth modifying substances in mammalian tissue cultures. However, the work must be duplicated before the significance of the differences can be established. Technical problems with the cultures have interfered with the early evaluation of this phase. Further exposures have continued in the program involving fallen tumor boron uptake studies and the neutron effect on biochemical and electrocardiographic characteristics of the intact response of rabbits.

A new effort has been started in the application of fission chamber measurement of the intensity and quality of neutrons emitted from therapy ports of the MRR. Two sets of instruments are in use, both employing the U^{235},U^{238} response difference. One is a new device being studied by the Reactor Physics Group; the other is the device used in early evaluation of the medical installation in the large BORX, now rehabilitated for irradiation use in the Medical Physics Division. Trials to establish the possible utility of a continuous monitor based on a short-lived isotope activation loop have been made, but a more appropriate detecting system must be contrived for it.

Another attempt to get neutron spectral data has been made with threshold foil methods.

With regard to the reactor itself, annealing of the core graphite elements has been completed and the stack fans have had special attention to their bearing requirements, in addition to the ordinary instrument and mechanical maintenance.

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