

RADIATION PROTECTION

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In the fiscal year 2002, the AVF cyclotron, the ring cyclotron and the experimental facilities ran satisfactorily without any serious trouble. The contamination levels of the cyclotron vaults and the experimental rooms are kept well below the legal limit. Notable increase of the radiation level in the vicinity of the cyclotron buildings has not been observed.

The periodical inspection for the cyclotron facilities was carried out by Nuclear Safety Technology Center at April.

Routine area monitoring

Continuous monitoring has been done for neutron and gamma-ray radiation levels at several points inside and outside of the cyclotron building using ^3He counters, proportional chambers and TLDs. Outside the building, no increase of radiation level, which is correlated to operation of the accelerators, have been observed.

Monthly integrated neutron dose at locations nP1, nP2 and nP3 are shown in Fig. 1. Locations of these monitors are shown in elsewhere.[1]

Some neutron sky-shine effect from the adjacent D-T neutron facility of the Faculty of Engineering is observed at nP1. No detectable radiation levels were observed from the cyclotron facilities.

No prominent gamma radiation levels were observed outside the cyclotron facilities.

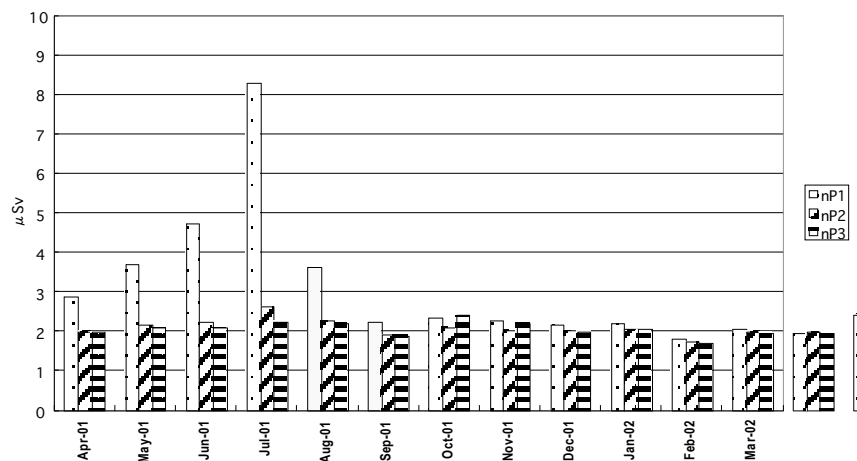


Fig.1. Monthly integrated neutron dose measured by neutron area monitors.

Routine personal dose monitoring

Personal dose monitoring has been made using a luxel badge (detection limit 0.1mSv). When one works at high radiation environment, a solid state pocket chamber (detection limit 0.001mSv) is used together with the luxel badge. Results of personal dose since operation of the RCNP facilities started are shown in Figs. 2 and 3. The AVF cyclotron operation started at 1975 and operation of the ring cyclotron started at 1991. During the fiscal year 2002, no person is found being exposed from the monitoring 0.1mSv and above.

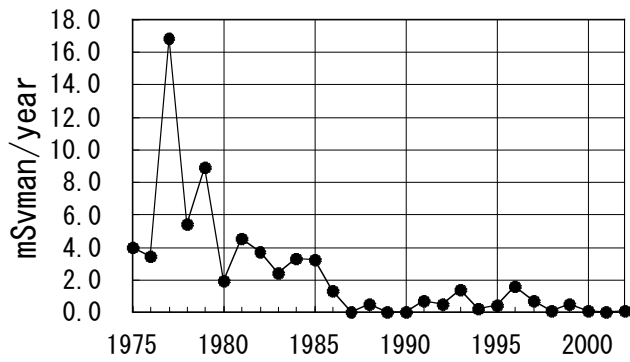


Fig.2. Annual radiation exposure for RCNP and SAS (Sumijyu Accelerator Service Ltd.) people. Sum for all of people.

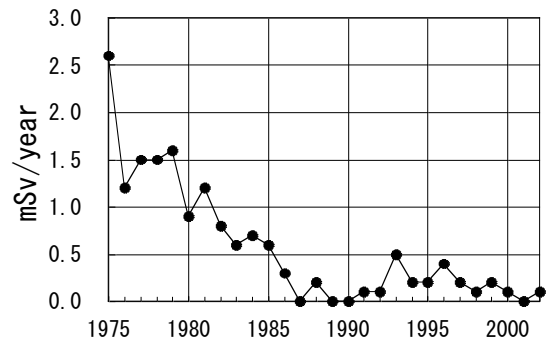


Fig.3. Annual radiation exposure for RCNP and SAS people. Dose for a person who suffered the maximum exposure in each year.

Reference

[1] T. Saito, A. Shimizu, K. Tominaga, S. Okamoto, T. Noro and K. Tamura, RCNP Annual Report 1993 p. 211