

RADIATION PROTECTION

T. Saito, K. Tominaga, A. Sakai, M. Kibayashi, A. Tamii and K. Takahisa

Research Center for Nuclear Physics Osaka University

The renewal works of the AVF cyclotron [1] and the setting of a new beam course at the Ring Cyclotron vault are completed by the end of May 2005, and these facilities are open to users.[2],[3]

In the year 2005, the safety regulation rule of RCNP is revised to conform to a revision of the radiation safety ordinance. This revision is mainly on usage of radioisotopes, directions for use of the RCNP cyclotrons are not changed.

Owing to a fault about treatment of radioisotope at a certain section of the university, an administrative guidance of the Ministry of Education, Culture, Sports, Science and Technology is carried out. According to the guidance, the facilities of RCNP including office section are inspected throughout. The inspection proved appropriate managements on radiation control at RCNP.

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, luxel badges and TLDs. No prominent gamma and neutron radiation levels were observed outside the cyclotron facilities. No increase of radiation level which is correlated to operation of the new facilities has been observed.

The floor surfaces of the cyclotron vault are periodically checked by smear tests. The tests prove that the contamination level is below permissible level. The contamination level related to the renewal works is also below permissible level.

Dose rates at the experimental area are checked every one-month redundantly by outside inspectors. The results of the measurements are put up at the entrance gate of the AVF Cyclotron building as the safety information for users of the facilities.

Routine personal dose monitoring

Personal dose monitoring has been made using a luxel badge (detection limit 0.1mSv) and a solid state pocket chamber (detection limit 0.001mSv). When one works at high radiation environment, a pocket chamber is used together with the luxel badge. Results of personal dose are shown in Figs. 1 and 2.

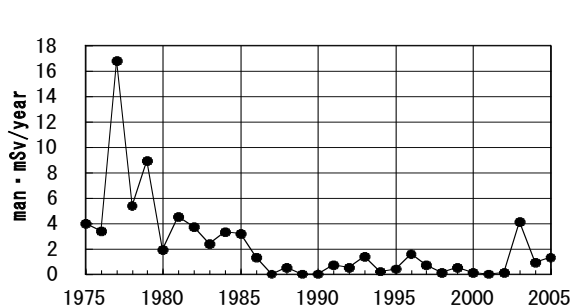


Fig.1. Collective dose per year for member of RCNP and SAS (Sumijyu Accelerator Service Ltd.).

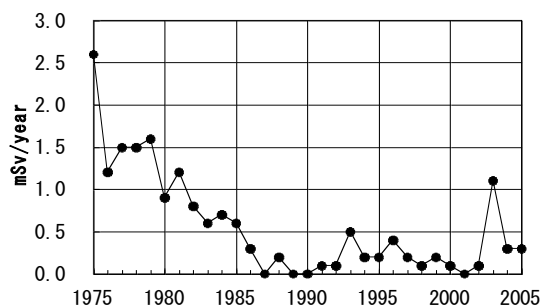


Fig.2. Maximum exposure value received by a person

The number of people who follow the radioactive works at the year 2005 is 77. During this year, exposures caused by the renewal works are found on 7 persons from the monitoring.

References

- [1] K. Hatanaka et al, in this Report.
- [2] T. Saito et al, RCNP Annual Report 2004 p105.
- [3] Y. Sakemi et al, RCNP Annual Report 2004 p89.