growth of individual trees, for example, that are affected by pests and diseases during their growth, or experienced severe oppression under the canopy of the forest, may significantly differ from the growth of the whole plantations. For example, cutting trees for forest care different, sometimes even opposite reactions of the growth of trees of different classes of Kraft, and the cutting of technological corridors affects only trees directly adjacent to the roads. [1] Obtaining exact dendrochronological series from growing trees is achieved by averaging the parameters of the annual layer of 10 – 30 trees that is a sufficient sample size in different literary data. Naturally, with the increase of the number of trees increases the sampling accuracy, but increase labor costs, therefore, many researchers propose to differentiate the sample size in specified range according to the variation of the width of the annual ring.

In the selection of model planting trees for getting dendrochronological information you should choose well developed plants of the first tier of the upper classes of Kraft (the dominant and co-ruled).

In order to reduce the variation of the width of the annual layer in the sample and to increase the accuracy of dendrochronological information, you have to refuse the selection of the material from the following trees:

- that having signs of chronic diseases on the trunk and branches (cancer sores, growths, hollow, dry tops of trees, dry branches in the middle and upper parts of the crown, etc.);
- with open or overgrown mechanical damage on the trunk, broken branches and top, or traces of such breaks in the past;
- that tilted, deformed in cross section or curved in the area available for sampling;
- which trunks rotten;
- located on the peculiarities of the microrelief (lowlands and hills, slopes, mounds, trenches, etc.) or close to them;
- close to which there are large stumps, deadwood;
- that are located closer than 25 m to the forest edges and large gaps (power lines, major highways, etc.);

That are located closer than 10 m to the forest roads, clearings, fire prevention breaks. Considering the width of the annual ring in cross section, it is recommended to measure the current annual growth on the radius of each tree in two directions, which are oriented on the sides of the world. Samples of wood were selected perpendicular to the longitudinal axis of the tree trunk on the height of 1,0–1,3 m from the ground surface.

Thus, careful observance of all these rules on the selection of model trees of Scots pine will allow to avoid many mistakes in obtaining and using dendrochronological information.

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RADIATION PROTECTION IN RADIATION THERAPY

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The issues of radiation protection of personnel and patients during radiotherapy in oncological institutions are considered. The appearance of new high-tech linear electron accelerators in radiological clinics posed new tasks for the radiation protection of patients and personnel. At the present time pre-radial preparation of patients has been substantially complicated, aimed at selecting conditions for irradiation of tumors with reduced absorbed doses in the surrounding normal tissues and critical organs. It was required a high accuracy of dose adjustment to tumor sites, verification of dose distributions. Complicated quality control procedures for accelerators used to irradiate patients. Correspondingly, the procedures for radiation control of patient exposure were complicated.

Keywords: radiation therapy, medical exposure, radiation protection, personal, patient, dose.

Medical exposure makes the main contribution to the collective dose of all anthropogenic exposure of the population of all countries. It is a complex kind of medical activity in which, along with physicians, medical physicists, engineers and technicians and specialists in the field of radiation safety participate.

Radiation therapy differs from other types of medical exposure with high values of absorbed dose received by the patients, the most complicated technique for preparation and implementation of irradiation, a more developed system of quality assurance and quality control for gamma-therapeutic devices, medical electron accelerators, simulators and tomographs. Very high requirements are imposed on the accuracy of dose dispensing to patients. More complex in radiotherapy compared with the radiation diagnosis is the radiation protection of personnel and patients. It is a system of protective measures that relate not only and not so much the measured doses received by personnel and patients, but also timely and correct regulatory sanitary and technical documents, guidelines for guaranteeing the quality of the entire technological process of radiotherapy, the timely creation of guidelines for quality control of the equipment used, which is rapidly improving. The training and subsequent professional development of personnel working in radiation therapy is also an important element of the radiation protection system for personnel and patients.

An important aspect of the functioning of this system is the prevention of radiation accidents in radiation therapy, the consequences of which can be very difficult. Complicating the design of new radiotherapy devices and methods of high-tech irradiation of patients led to the increase in the number of radiation accidents. In no small part, this factor has influenced the increased attention to the issues of radiation protection of patients. As a result, more attention was paid not only to the quality control of equipment, but also to the quality of the training material in the postgraduate improvement of physicians, physicists, technologists, engineers.

The basic principles and requirements for radiation protection in radiation therapy are an integral part and with their specificity in the requirements for radiation protection in medical radiation in general. In addition, it is necessary to distinguish between the radiation protection of personnel employed in radiation therapy and the protection of irradiated patients. If the same requirements can be applied to the protection of personnel as in other branches of human activity, then in respect of patients exposed to radiation treatment, radiation protection differs in principle from the protection of patients in diagnostic irradiation

Radiation protection in radiation therapy is based on new International standards and recommendations, as well as national regulatory documents. Among them are the Recommendations of the International Commission on Radiological Protection ICRP No. 103, 2007; No. 105, 2011, which summarizes the latest scientific data on all aspects of radiation protection of personnel and the world population in all types of irradiation. The last recommendations are devoted to radiation protection of patients during medical exposure.

It includes:

1. Justification of medical procedures.
• Justification of a specific radiological procedure (level 2).
• Rationale for the specific patient (level 3).
2. Optimization of protection during medical exposure.
• Diagnostic reference levels.
• Radiotherapy.
3. Effective dose and medical exposure.
4. Irradiation of patients in a state of pregnancy.
5. Prevention of accidents with remote and contact radiotherapy.

In the implementation of radiation protection, the legal aspects of radiotherapy are also important. These aspects also concern the responsibility for the mistakes made by medical personnel, the relationship between the doctor and the patient, and the protection of medical and technical personnel from unreasonable charges.

EVALUATION OF MEASUREMENT UNCERTAINTY IN THE CONTROL OF MICROBIOLOGICAL PURITY OF PURIFIED WATER

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The subject of the study is the evaluation of measurement uncertainty in the control of microbiological purity of purified water.

The purpose of the course work is to study the sources of literature describing methods for estimating the uncertainty of measurements, to make an uncertainty assessment using the example of controlling the microbiological purity of purified water, to determine the range of values within which the true value of the microbiological purity of the water is purified within a certain range.

The paper gives the main terms and concepts related to measurement uncertainty, gives the results of tests to evaluate the repeatability and reproducibility of tests for the microbiological purity of purified water, and also calculations of the extended uncertainty that allowed determining the range of values within which the true value of the microbiological purity of water is purified In a certain range.