Lomonosov Moscow State University
Skobeltsyn Institute of Nuclear Physics

«COORDINATED»

Chairman of the trade union committee SINP MSU

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«APPROVED»

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Instruction

on labor protection for students working in

General Nuclear Practicum

at lab **No. 15**

"Spontaneous fission of ^{252}Cf"

in room 5-05 of LOSP

Southern wing of the SINP MSU

№_____

1. General regulations

1.1. This Instruction is intended to organize safe work in a physical laboratory. The requirements of this Instruction are mandatory.

1.2. Responsibility for ensuring safe working conditions in the laboratory, for the good condition of laboratory equipment, measuring instruments, for the readiness of students to perform laboratory work lies with the manager (faculty member, practicum staff member).

1.3. The student has the right to be in the **room 5-05** of the general nuclear practicum only at the scheduled time.

1.4. When starting the task, the student must know the general rules for working with electrical installations and radioactive substances, as well as study the installation and procedure for performing laboratory work.

1.5. Students who have been trained on the topic of laboratory work, received a briefing on labor protection with a record in the "Familiarization Sheet," familiarized with the "Instructions for Electrical Safety in the Laboratories of the Skobeltsyn Institute of Nuclear Physics of Moscow State University," "Instructions for Radiation Safety when Working with Radioactive Substances and Sources of Ionizing Radiation (RAV and III) at the Skobeltsyn Institute of Nuclear Physics of Moscow State University."

1.6. The main hazards during laboratory work are:

- possibility of electric shock;

- possibility of depressurization of the radioactive source.

1.7. The following is prohibited in the laboratory:

- perform self-assembly (disassembly), activation (deactivation) of circuits, instruments, equipment without a laboratory assistant (engineer, faculty member);

- work alone;

- take food;

- put the upper clothes into the rooms where work with r/a isotopes is carried out.

1.8. Students are obliged to comply with the requirements of labor protection, fire safety, sanitary standards and personal hygiene rules, comply with the Internal Regulations of the University.

1.9. Immediately report all violations of labor protection requirements and fire safety rules to the administration.

1.10. For violation of labor protection requirements, fire safety rules and internal regulations of the University, the perpetrators are held accountable in accordance with laws in force

2. Labor protection requirements before starting work

2.1. When starting work on the educational installation **"Spontaneous fission of ^{252}Cf"**, the student must know the structure and principle of operation of this installation.

2.2. Put on overalls (gown), fasten all buttons so that there are no fluttering ends, check the absence of sharp, stabbing and cutting objects in the clothes.

2.3. Prepare your workplace for safe work and keep it clean and tidy during the entire training time:

- remove foreign objects (equipment) not used in this work, do not obstruct passages with them;

- only equipment necessary for specific work shall be at the workplace; workplace clutter is unacceptable.

2.4. Perform external inspection of the workplace. Report to the manager on the detected deficiencies, until elimination of which do not start work.

2.5. Obtain a faculty member's permit to work on the installation.

3. Labor protection requirements during work

3.1. During work, be attentive, do not engage in extraneous matters (conversations) and do not distract others.

3.2. The student is obliged to perform only the work related to the fulfillment of his assignment.

PECULIARITIES OF WORK

The following is used in the work:

1. Closed radioactive source Cf-252 (activity less than 10 kBq). The source is constantly in a hermetically sealed vacuum chamber, in room 5-15.

2. Semiconductor detector, which is also located in room 5-15. Voltage up to 120 V is supplied.

3. Amplitude-digital converter.

Only computers are at students' workplaces.

3.3. Students are prohibited from:

- work without a dressing gown;

- open the radiation protection system and remove the source;

- replace fuses in electronic equipment, disconnect cables;

- turn on and off the units by means of automatic power board.

- leave the operating unit unattended.

3.4. In the event of any malfunction, the student must immediately inform the practicum staff member or faculty member.

4. Labor protection requirements at the end of work

4.1. At the end of the work, it is necessary:

- inform the faculty member (staff member of the practicum) about the completion of his/her work;

- put your workplace in order;

- remove overalls (gown).

4.2. At the end of the training session, leave the laboratory.

5. Labor protection requirements in emergency situations

5.1. Immediately stop work and inform the laboratory manager (practicum staff member) in case of:

- injury to the student (staff member);

- occurrence of an emergency situation preventing continuation of laboratory work;

- occurrence of fire or prerequisites for its occurrence;

- malfunctions of equipment, apparatus, measuring instruments, etc.

In the future, clearly follow the instructions received from the head of laboratory work (practicum staff member).

5.2. In case of injury, it is necessary:

- release the injured from the injuring factor;

- provide the victim with first aid, if necessary, call an ambulance to the victim;

- preserve the situation at the scene of the incident as it was at the time of the incident, if this does not threaten the danger of others.

5.3. In case of emergency:

- in case of depressurization of the radioactive source, the student is obliged to stop working on the installation and inform the faculty member or the duty officer of the practicum. The place of radioactive contamination should be fenced and hazard signs should be displayed. The dosimetry service (tel. 8-495-939-50-90, 8-495-939-34-86) must be urgently called. The student should wash his hands

thoroughly, take off his robe and go to a safe room. It is forbidden to leave before the dosimetry service. Emergency measures to eliminate r/a contamination are carried out at the direction of the dosimetry service.

5.4. In case of fire:

- the student is obliged to stop working on the installation and inform the faculty member or the duty officer of the practicum;

- immediately report the fire and its location to the fire department of the university (tel. 8-495-939-47-22) or call the city fire department (tel. 101), from the mobile phone 112; It is necessary to specify the exact address and floor and, if possible, send someone to meet the firefighters;

- leave the auditorium, moving the specified faculty member or duty officer of the practicum by evacuation to a safe gathering place;

- in case of heavy smoke, it is obligatory to use respiratory protection against carbon monoxide: cotton-gauze bandages, handkerchiefs moistened with water;

- close the door to the room where the fire source is located in order to reduce the speed of fire spread;

- upon completion of evacuation to a safe place, do not disperse until special instructions from the faculty member or duty officer (roll call will be performed).

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