

**Management Measures of Shenzhen Institute of Advanced  
Technology, Chinese Academy of Sciences on Radiation Safety**

**Chapter 1 General**

**Article 1** In accordance with the *Law of the People's Republic of China on Prevention and Control of Radioactive Pollution* and the *Regulations on the Safety and Protection of Radioactive Isotopes and Radiation Devices* and other relevant laws and regulations on radiation protection, and to enhance the safety awareness and skills of personnel engaged in radiation work, strengthen radiation safety management, and prevent radiation accidents, these Management Measures are formulated based on the practical radiation work of SIAT.

**Article 2** These Measures apply to the safety and protection of personnel and places using radioactive isotopes and radiation devices in Shenzhen Institute of Advanced Technology, Chinese Academy of Sciences (SIAT), as well as the management of waste radioactive sources, contaminated items, and exemption management.

**Article 3** The Radiation Safety and Environmental Protection Management Committee (hereinafter referred to as the "Radiation Management Committee") is the leading organization responsible for the management, supervision, and technical guidance of radiation safety and protection work. The Radiation Management Committee has an office under its jurisdiction, attached to the Department of Public Service Platform for Science and Technology, responsible for the management of daily affairs.

**Article 4** In accordance with relevant national and Chinese Academy of Sciences regulations, a radiation work permit registration system is implemented.

## **Chapter 2 Radiation Personnel Management**

**Article 5** Personnel working with radioactive isotopes or radiation devices must undergo pre-employment medical examinations and meet the occupational health requirements for radiation workers, and undergo regular medical examinations.

**Article 6** Personnel using radioactive isotopes or radiation devices must have knowledge of radiation protection and relevant regulations, undergo radiation safety training organized by qualified units, and obtain certification after passing the assessment before they can take up their positions. Radiation personnel engaged only in the use of Class-III radiation devices are not required to participate in centralized assessments. They will be assessed by SIAT itself and can start working after passing the assessment.

**Article 7** Proper use of radioactive isotopes or radiation devices shall ensure designated personnel, exclusive management, and dedicated use.

**Article 8** Personnel engaged in radiation work must strictly abide by operating procedures and regulations.

**Article 9** Personnel engaged in radiation work shall be equipped with personal dosimeters, establish personal dose records, undergo testing by qualified units at specified intervals, and archive the monitoring results.

**Article 10** User departments shall regularly train relevant employees and students in laws, regulations, rules, and operating procedures.

**Article 11** Adhere to organized learning, promptly rectify problems that occur during actual operations, effectively improve the level of personnel in the use and inspection of instruments and equipment, and prevent accidents.

### **Chapter 3 Management of Radiation Sources and Radiation Devices**

**Article 12** Establish a management system for the ledger of radiation sources and radiation devices. For radioactive isotopes, details such as the name of the nuclide, activity, source code, storage location, safety measures, and administrator information shall be recorded. For radiation devices, details such as instrument name, model, storage location, safety measures, and administrator information shall be recorded.

Radiation sources and radiation devices that meet the exemption requirements specified by the State must be filed with the government environmental protection competent department according to relevant regulations before they can be exempted from management.

**Article 13** Strict management of the entry and exit of radiation devices. Internal units borrowing or reallocating radioactive isotopes or radiation devices must obtain approval from the laboratory head and complete relevant procedures at the radiation management department of the Institute. For borrowing, lending, or reallocating radioactive isotopes or radiation devices to external units, approval from the Institute's radiation management department is required, and procedures must be completed after obtaining consent from relevant provincial or municipal authorities.

**Article 14** The transportation of radioactive isotopes and radiation devices must be strictly carried out in accordance with relevant regulations. Upon arrival at the Institute, they shall be stored properly according to regulations and not placed randomly. Empty containers that have contained radioactive isotopes must be tested according to relevant national regulations before they can be processed.

**Article 15** Radioactive isotopes and radiation devices must pass inspection before use. The user departments shall formulate detailed technical operating procedures and emergency measures for equipment failure, and personnel shall strictly follow the operating procedures.

**Article 16** Personnel shall regularly inspect radiation devices, strengthen hygiene, cleanliness, and management to ensure the devices are in good working condition.

**Article 17** When equipment malfunctions, professional personnel or equipment manufacturers shall be contacted for repairs, and records of equipment maintenance and repairs shall be established.

**Article 18** User departments shall cooperate with the radiation safety competent department to complete annual safety and protection status assessments regularly.

## **Chapter 4 Radiation Protection**

**Article 19** Radiation devices shall be equipped with dedicated shielded laboratories, managed by designated personnel, and access shall generally be restricted to non-related individuals.

**Article 20** Regularly inspect doors and windows for damage to maintain their normal condition. Take measures for radiation safety protection, including setting up radiation signs, audible and visual alarms, etc., to prevent accidental exposure of unrelated personnel.

**Article 21** Regularly conduct radiation protection tests and commission qualified professional institutions to supervise and monitor them. Any identified safety hazards shall be promptly rectified and documented.

**Article 22** Radiation work must be conducted in designated radiation work areas, and radioactive work shall not be carried out in non-radiation work areas under any circumstances.

**Article 23** For existing radioactive laboratories, strictly control the types and quantities of isotopes used according to workplace levels to ensure radiation safety.

## **Chapter 5 Emergency Response to Accidents**

**Article 24** In the event of a radiation accident, the laboratory responsible for the accident must promptly report to the laboratory head and the Institute's radiation safety competent department, initiate contingency plans immediately, take appropriate measures to reduce the harm and impact of the accident, and cooperate with supervisory departments for handling. Delay or concealment is not permitted.

**Article 25** In the event of inexplicable power outages, extensive leaks in server rooms, etc., immediately shut off the power switch and take emergency measures at the scene.

**Article 26** In the event of a fire, first turn off the power switch, use fire extinguishers, call the fire department, and take self-rescue measures.

**Article 27** In the event of radioactive contamination accidents in workplaces, on the ground, or on equipment, the radioactive nuclides, scope, and level of contamination must be determined first, and appropriate decontamination measures shall be taken as soon as possible.

**Article 28** In the event of radioactive gas, aerosol, or dust contamination accidents, purification measures such as ventilation, air exchange, and filtration shall be taken according to the magnitude of the monitoring data.

**Article 29** When employees or patients suffer accidental radiation injuries, the operators shall first turn off the equipment and cut off the high-voltage power supply immediately. Immediately take the personnel who have suffered accidental radiation injuries to seek medical attention.

**Article 30** For radiation personnel who suffer accidental radiation injuries, their personal dosimeters shall be handed over to the radiation safety competent department for measurement of the received radiation dose by qualified institutions.

**Article 31** Track and observe the health status of personnel who have suffered accidental radiation injuries and conduct follow-up work accordingly.

## **Chapter 6 Disposal of Radioactive Waste and Decommissioned Radiation**

### **Sources**

**Article 32** The disposal of radioactive waste shall be carried out in accordance with the *Radiological Protection Standard for Management of Medical Radioactive Waste*.

**Article 33** Laboratories shall designate personnel responsible for the collection, classification, storage, and disposal of waste. Personnel responsible for waste management shall be familiar with relevant national laws and regulations on radioactive waste management and possess the safety culture literacy to master professional radiation protection and dose monitoring techniques.

**Article 34** Laboratories shall have safety measures to prevent waste loss, theft, container damage, and disaster accidents. Prominent ionizing radiation warning signs shall be placed in storage rooms, and a waste file shall be established along with entry and exit registration and dual-lock management system.

**Article 35** Waste storage registration cards shall be established, and the main characteristics and disposal processes of waste shall be recorded on the cards and archived for record.

**Article 36** Medical sealed radioactive sources shall be disposed of in accordance with relevant national laws and standards.

**Article 37** Personnel handling radioactive waste must use personal protective equipment or shielding protection facilities and wear personal dosimeters.

**Article 38** The transfer of decommissioned radioactive sources and radioactive waste shall be applied for by the source user unit to the Institute's radiation safety competent department. After review, it shall be submitted to the Environmental Protection Department for approval. After approval, specialized agencies shall be commissioned for retrieval and transfer. User units and individuals are not allowed to handle it without authorization.

**Article 39** Source user units shall establish a quarterly inspection system for waste radioactive sources, conduct inspections of source conditions every quarter, and report waste radioactive sources for disposal in a timely manner if discovered

**Article 40** When applying for the disposal of devices or equipment containing radioactive isotopes, regardless of whether the source is removed, the user unit must proactively explain the radiation characteristics of the equipment and affix prominent labels on the physical objects. The Institute's radiation safety competent department shall dispose of them in accordance with national standards and not follow the conventional equipment disposal process.

**Article 41** All expenses incurred in the disposal of radioactive waste (sources) are the responsibility of the laboratory where the radioactive waste (sources) are generated.

## **Chapter 7 Miscellaneous**

**Article 42** Local corporates shall refer to these Measures for implementation.

**Article 43** These Management Measures are interpreted by the Department of Public Service Platform for Science and Technology and shall come into effect from the date of issuance.