Content

Title：	Regulations on Treatment and Storage of Radioactive Waste and Safety Management of the Facilities Ch
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Legislative：	1. Promulgated on October 8, 2003 by the Atomic Energy Council per its decree No. Hui-Wu-Tzu- 0920026524 2. Amendment of Articles 5 on January 24, 2008 by the Atomic Energy Council per its decree No. Hui-Wu-Tzu-0970001431 3. Amendment of Articles 2, 2-1, 15 and 15-1 on October 22, 2008 by the Atomic Energy Council per its decree No. Hui-Wu-Tzu-0970016963 4. Amendment of Article 13, Article 15-1, Article 16, Article 17, on June 25, 2019 by the Atomic Energy Council Perits decree Hui-Wu-Tzu No. 10800072601 5.Amendment of Article 8 and 9 on May 13, 2021 by the Atomic Energy Council Perits decree Hui-Wu-Tzu No. 11070000091
Content：	**Chapter I General Principles** **Article 1** These Regulations are enacted pursuant to Article 21 of the Nuclear Materials and Radioactive Waste Management Act. **Article2** The terms used in these Regulations are defined as follows: Thermal treatment of radioactive waste: using high temperature methods such as incineration and melting to treat the radioactive waste. Containers: the vessels used to store or dispose of the radioactive waste. Maintenance: the operations such as removal of rust, repainting, repacking, and re-solidifying in case of rust and erosion of the containers of radioactive waste or deterioration of radioactive waste. Stabilizing treatment: the treatment to make radioactive waste reach condition stabilizing in physical state and chemical properties. **Article 2-1** Treatment and storage of radioactive waste shall meet the provisions of the Ionization Radiation Protection Act. **Chapter II Requirements for Treatment Facilities and Operations** **Article 3** The design of the treatment facilities of radioactive waste (hereinafter shortened as "treatment facilities") shall meet the following provisions: The treatment facilities shall be provided with such functions as fire proof, explosion proof, and overflow collecting; The treatment facilities shall employ seismic resistant design, able to ensure the safety of equipment and structure; The design of the waste treatment system, equipment, or component shall be able to suppress deterioration, prevent leakage, and reduce the volume of the waste; Equipment used to detect the discharge of gas or liquid watse shall be provided. **Article 4** Where thermal treatment system is used in the treatment facilities, the design shall

meet the above article and the following provisions:

The treatment equipment of radioactive exhaust gas shall be redundant.

Negative pressure design shall be equipped for the workshop buildings.

Article 5

The radiation protection design of the treatment facilities shall ensure the annual effective dose equivalent to a general public outside the facilities is not more than 0.25mSv, and conform to the as low as reasonably achievable principle.

The radiation protection design of the waste treatment system of nuclear reactors shall meet the provisions of the laws and regulations on the control of nuclear reactors.

Article 6

The treatment facilities shall be operated in accordance with the safety analysis report of the facilities and the regulations on radiation safety protection.

Article 7

To implement homogenous solidification of radioactive waste, a solidification process control plan including the following contents shall be submitted to the competent authority for approval prior to implementation:

General description.

Solidification system and solidification operation flow.

Sampling analysis of the radioactive waste prior to solidification.

Container of the solidified waste.

Standard of the solidified waste form and the test results.

Counter measure for the unqualified solidified waste.

Quality assurance.

Other matters designated by the competent authority.

To modify the solidification process control plan, an application shall be submitted in accordance with the provisions of the preceding paragraph.

Article 8

The containers shall meet the following provisions:

The materials, design, and manufacturing shall be able to prevent corrosion and deterioration, and ensure the integrity of the structure within the design lifetime.

Convenience for operation and handling shall be considered.

The mechanic strength is sufficient to endure the load of hoisting, conveying, storage, and final disposal.

The covers and fastening pieces of the containers shall be convenient to operate, and will not be loosened or break off during the process of hoisting and conveying.

The exterior of the containers shall be even, and easy to decontaminate and avoid water from being accumulated on the top.

The containers aforementioned in the preceding paragraph should consider technical feasibility in each stage of the treatment, storage, transport and final disposal operations of radioactive waste.

Article 9

The containers can only be used after having been approved. The applicant shall submit a report including the following contents to the competent authority for reviewing and approval prior to using the containers:

Scope of application.

Design standards, detailed engineering design and illustrations.

Materials, composition, dimensions, manufacturing, and corrosion prevention of the containers.

Test methods, standards, and results.
Quality assurance.
The technical feasibility assessment on the containers in each stage of the treatment, storage, transport and final disposal operations of radioactive waste.
Other matters designated by the competent authority.

Article 10

Where the surface radiation dosage of a container that is filled with radioactive waste is more than 2mSv/h, it shall be operated by means of remote control or by strengthening radiation protection control.

Article 11

The threshold values of non-adhesive contamination on the surface of a container that is filled with radioactive waste are as follows:

The contamination of Beta and Gamma nuclides shall be not more than 4Bq/cm^2.
The contamination of Alfa nuclides shall be not more than 0.4Bq/cm2.

Article 12

The surface of a container that is filled with radioactive waste shall be marked with a radiation warning symbol and a serial number. The radius of the inner circle of the radiation sign shall be not less than 2cm.

Chapter III Requirements for Storage Facilities and Operations

Article 13

The design of the storage facilities of radioactive waste (hereinafter shortened as "storage facilities") shall meet the following provisions:

Radiation monitoring equipment shall be provided.
Fire detecting or fire fighting equipment shall be provided.
The function of discharged water collecting and sampling equipment shall be provided.
The functions of receiving, detecting, operation monitoring, and storage of waste shall be provided.
The maximum storage activity and storage capacity shall be determined.
Appropriate measures shall be adopted to reduce the rate of corrosion of the containers.
The waste in the storage facilities is retrievable.
Seismic resistant shall be provided to ensure the safety of the equipment and structure.

The design of the storage facilities of high level waste shall meet the following provisions additionally:

The functions of maintaining heat removal, closure, radiation shielding, structure and maintaining the sub-critical shall be provided by the storage cask.
The requirements on nuclear protection and safeguards shall be satisfied.

Article 14

The radiation protection design of the storage facilities shall be made in accordance with the provisions of Paragraph 1, Article 5.

The radiation-protection design of the storage facilities of nuclear reactors shall meet the provisions of the laws and regulations on the control of nuclear reactors.

Article 15

The storage facilities shall be operated in accordance with the safety analysis report of the facilities and the regulations on radiation safety protection.

Article 15-1

The low level radioactive waste generated by the operation of the treatment facility and the nuclear reactor facility shall not be stored for more than five years without being stabilized.

If it is assessed that it cannot be stabilized within five years, the operator shall submit a plan for the stabilization, and report to the competent authority for approval before continuing to store.

Article 16

Where corrosion or deformation of container or deterioration of the solidified waste form occurs when the low level radioactive waste storage facilities are receiving radioactive waste or during the period of operation, the operator shall carry out maintenance.

The maintenance operations shall meet the following provisions:

Where the climate is not suitable for maintenance, the operations shall be suspended.

Training on radiation protection, maintenance operation, emergency response, and labor safety and hygiene shall be provided for the maintenance workers.

Maintenance shall be performed under the supervision of the radiation protection personnel recognized by the competent authority.

The maintained containers shall be marked in accordance with the provisions of Article 12.

The threshold values of non-fixed contamination on the surface of the maintained containers shall meet the provisions of Article 11.

The concentration of the suspended substances in the air in the maintenance operation area shall meet the provisions of the Ionization Radiation Protection Act.

Article 17

The operators shall evaluate the storage facilities once every ten years after the license issued or renewed , and submit an evaluation report including the following contents to the competent authority for review and approval:

General description.

Examination and evaluation of the facility structures.

Examination and evaluation of the hoisting equipment.

Evaluation of the storage status of the waste.

Evaluation of storage operations.

Evaluation of the impacts of radiation.

Lesson learnt of the abnormal events occurred in past ten years.

Preliminary decommission plan.

Other matters designated by the competent authority.

Article 18

Where corrosion or deformation of container or deterioration of the solidified waste is found in the evaluation of the storage facilities performed once every ten years, the operator shall submit a maintenance plan including the following contents to the competent authority, and implement the plan after it is approved:

General descriptions of the operation, including work contents, personnel organization, time schedule, work place, and layout of the storage area after maintenance is finished.

Equipment used for maintenance, including treatment equipments and solidifying agents.

Procedure of maintenance.

Radiation protection measures.

Waste management after maintenance is finished.

Industrial safety and hygiene measures.

Evaluation for personnel dose and environmental radiation impacts.

Response measures for accidents.

Quality assurance measures.
Other matters designated by the competent authority.

The operators shall, within six months after the maintenance plan is finished, submit a report on the proceeding of maintenance to the competent authority for review and approval.

Article 19

To dispose the radioactive waste caused by accidents or in case of damage of a container filled with radioactive waste due to accidents, the waste shall be firstly moved into the storage facilities. And then the operator shall, within one month, submit a maintenance plan according to the provisions of the preceding article to the competent authority for approval prior to implementation.

Chapter IV Supplementary Provisions

Article 20

The provisions of Article 9 are not applicable to the containers that have already been approved before these Regulations are enforced.

Article 21

These Regulations will take effect as of the date of promulgation.