


## Content

Title :	Enforcement Rules for the Nuclear Materials and Radioactive Waste Management Act 
Date :	2008.01.24
Legislative :	1. 中華民國九十二年七月三十日行政院原子能委員會會物字第 0920018935 號令訂定發布全文 39 條；並自發布日施行 2. 中華民國九十七年一月二十四日行政院原子能委員會會物字第 0970001432 號令修正發布第 18、19、34 條條文
Content :	<p>Enforcement Rules for the Nuclear Materials and Radioactive Waste Management Act</p> <p>Enforced by Letter Hui-Wu-Tzu No.0920018935 on July 30, 2003</p> <p>Article 1 These Rules are enacted pursuant to Article 50 of the Nuclear Material and Radioactive Waste Management Act (hereinafter referred to as "the Act").</p> <p>Article 2 The uranium and thorium minerals referred to in Subparagraph 1, Article 4 of the Act are classified as follows:</p> <ol style="list-style-type: none"><li>1. Uranium minerals, thorium minerals or uranium-thorium mixed minerals, with a weight percentage of uranium and thorium not less than 0.05%.</li><li>2. Uranium, thorium or mixtures of the two in any physical or chemical forms, with a weight percentage of uranium and thorium not less than 0.05%.</li></ol> <p>Article 3 The materials that generate energy through self-sustained chain reaction of fission of nucleus referred to in Subparagraph 2, Article 4 of the Act means the materials containing plutonium, U(233) or U(235) as well as the materials condensed from U(233) or U(235).</p> <p>Article 4 The radioactive waste referred to in Subparagraph 3, Article 4 of the Act is classified as follows:</p> <ol style="list-style-type: none"><li>1. High level waste: means the spent nuclear fuel for final disposal or the extraction residuals generated in reprocessing.</li><li>2. Low level waste: means the radioactive waste other than described above.</li></ol> <p>Article 5 The radioactive waste treatment facility referred to in the Act means the factory building or plant that is provided with radioactive waste collecting, treatment, packaging, and radiation monitoring system, components or equipments, and is used to change the nuclear species concentration, volume or form of the radioactive waste.</p> <p>Article 6 The radioactive waste storage facility referred to in the Act means the building factory or plant that is provided with radiation —</p> <p>protection and waste storage functions, waste hoisting and unloading equipments, and radiation monitoring system, and is used to store radioactive waste with a weight not less than 3000kg and activity not less than 37 billion Bq for final disposal.</p> <p>Article 7 In case of alteration of the matters recorded in a license granted under the Act, the license holder shall apply for alteration registration at the competent authorities within 30 days commencing from alteration according to Article 5 of the Act.</p> <p>Article 8 Before to apply for operation license of nuclear source material or nuclear fuel production or storage facility according to Paragraph 1, Article 9 of the Act, the applicant shall submit a test run plan to the competent authorities after completion of construction of the production or storage facility to apply for test run at first.</p> <p>After test run is finished in accordance with the above paragraph, a letter of application enclosed with the following documents shall be submitted to the competent authorities to apply for operation license:</p> <ol style="list-style-type: none"><li>1. Safety analysis report of the latest edition.</li><li>2. Technical specifications of the facilities.</li><li>3. Test run report.</li></ol>

4. Incident response plan.
5. Photocopy of the storage permit(s) or entrusted treatment contract(s) issued by domestic and/or foreign radioactive waste final disposal facility.
6. Other documents designated by the competent authorities.

The competent authorities shall finish examination of the above-mentioned application within 3 months.

Article 9 To apply for renewal of a operation license according to Paragraph 3, Article 9 of the Act, the applicant shall submit the following documents; where necessary, the competent authorities may require the applicant to bring forward a decommissioning plan:

1. Safety analysis report of the latest edition
2. Safety evaluation report for renewal of license.

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7. Photocopy of the storage permit(s) or entrusted treatment contract(s) issued by domestic and/or foreign radioactive waste final disposal facility.

Article 10 The safety evaluation report for renewal of license referred to in Subparagraph 2 of Article 9 shall include the following contents:

1. Statistic analysis of the running status and abnormal events in the past years.
2. Statistic analysis of the radioactive matter emission and environmental radiation monitoring in the latest 10 years.
3. Statistic analysis of the radiation dosage received by the workers and the persons in ambient areas in the latest 10 years.
4. Renewal and improvement of the facilities and equipments.
5. Safety system performance evaluation.
6. Evaluation of the residual life time of facility.
7. Other matters designated by the competent authorities.

Article 11 The decommissioning plan brought forward under Article 9 shall include the following contents:

1. Organization of the decommissioning executor.
2. Description of the facilities to be decommissioned.
3. Radiation evaluation of the facilities to be decommissioned.
4. Classes and quantities of the radioactive wastes.
5. Manpower and technical planning for each decommission stages.
6. Job specification and time schedule of the stages.
7. Evaluation of radiation dosage and protection measures.
8. Other matters designated by the competent authorities.

Article 12 The time limits for the operators of nuclear source material or nuclear fuel production or storage facilities to prepare reports and records according to Article 10 of the Act are prescribed as follows:

1. Annual report on operation, radiation protection and

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environmental radiation monitoring shall be submitted within 3 months after the termination of a year.

2. Nuclear source material or nuclear fuel production, inventory and sales records of every half-year shall be submitted before January 31 and July 31.
3. Quarterly environmental radiation monitoring report shall be submitted within 60 days after termination of each season.
4. Radioactive waste generation, treatment, storage and final disposal records of every month shall be submitted before the end of the next month.
5. In case of abnormal or emergency event, information shall be made within 2 hours, and written report shall be reported within 30 days commencing from discovery of the event.

Article 13 The abnormal or emergency event referred to in Subparagraph 5 of the preceding article means any of the following occasions:

1. Substantial impact to the facility operating safety or serious encumbrance to the safety operation of the operators is caused by natural disaster or other factors.
2. Safety is likely to be affected because status other than analyzed in the safety analysis report, status beyond design standards, or status not covered in the running nad emergency operation instruction book occurs during the process of running.
3. Person is injured by radioactive pollution and needs to be sent to

outside the facility for medical treatment.

4. The radiation dosage received by the persons or the liquid or gas effluents discharged by the facility exceeds the value specified in the Ionizing Radiation Protection Act.

5. Accident occurs during hoisting, unloading or transportation of nuclear source material or nuclear fuel.

6. Nuclear source material, nuclear fuel or radioactive waste is lost, stolen, or damaged.

7. Other occasions recognized by the competent authorities.

Article 14 The operators of nuclear source material or nuclear fuel production

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facilities shall have any of the following qualifications, and shall hold the qualified certificates granted by the competent authorities:

1. Graduated from science, engineering, agriculture or medicine departments of colleges or having equivalent educational level, qualified in training, and having practiced in the field for over 3 months or having participated in the whole course of test run.

2. Graduated from senior high schools or vocational schools or having equivalent education level, qualified in training, and having practiced in the field for over 6 months or having participated in the whole course of test run.

The above-mentioned training includes qualification acquisition training and on-job training, and the training hours are as follows:

1. Qualification acquisition training:

(1) The total training hours of an operator running nuclear source material production facility shall be not less than 60 hours, among which the training of facility system and operation procedure shall account for at least 40 hours, and the radiation safety training at least 20 hours. And the operator shall pass the exam.

(2) The total training hours of an operator running nuclear fuel production facility shall be not less than 240 hours, among which the training of facility system and operation procedure shall account for at least 200 hours, and the radiation safety training at least 40 hours. And the operator shall pass the exam.

2. On-job training: the hours of on-job training shall be not less than 1/10 of that of the above-mentioned qualification acquisition training every year, and the operator shall pass the exam.

Article 15 To apply for nuclear source material or nuclear fuel production facility operator certificate, the applicant shall submit a letter of application enclosed with the following documents to the competent authorities:

1. Photostat copy of education certificates.

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2. Training certificates.

3. Field practice certificate.

The validity period of the above-mentioned training certificate is 3 years. A letter of application and on-job training certificate shall be submitted to the competent authorities 30 days prior to expiration, to apply for renewal of the certificate.

Article 16 The newly added safety issue referred to in Subparagraph 2, Article 12 of the Act means any of the following occasions:

1. Accident probability or accident severity is increased, or the malfunction probability of important safety equipments is higher than estimated in the safety analysis report.

2. Accident other than covered in the safety analysis report is likely to occur.

3. Safety margin is reduced.

Article 17 The occasion likely to hazard the public health, safety or environmental ecology during the construction period as referred to in Paragraph 1, Article 13 of the Act means any of the following:

1. Major defect in design or issue referring to the subparagraphs of Article 16 is found and has not been evaluated and solved.

2. There are great differences in the contents of the field operation and safety analysis report that will influence safety functions.

3. There are serious defects in execution of the quality assurance program

that will greatly influence the quality of works.

4. Great accident occurs, causing unfavorable influence to field operations.

5. Other occasions prescribed by the competent authorities.

Article 18 The occasion likely to hazard the public health, safety or environmental ecology during the operation period as referred to in Paragraph 1, Article 13 of the Act means any of the following:

1. Facilities are not operated according to the operation technical specifications.

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2. The documents, data, records, or inspection results related to evaluation performed by the competent authorities suggest that the nuclear source material or nuclear fuel production or storage facility doesn't meet the provision of Paragraph 1, Article 8 of the Act.

3. The environmental radiation monitoring results show that the radiation dose outside the facility is more than 0.01mSv/h, or it is estimated that the annual effective dose equivalent caused to general public outside the facility exceeds 0.25mSv.

4. Mendacious documents, data or records are provided to apply for nuclear source material or nuclear fuel production or storage facility operation license, thus affecting the correctness of the competent authorities granting licenses.

5. Other occasions prescribed by the competent authorities.

Article 19 To apply for decommission of nuclear source material (and)/or nuclear fuel production or storage facility or radioactive waste treatment or storage facility according to Paragraph 1, Article 14 or Paragraph 1, Article 23 of the Act, the operator shall submit a letter of application enclosed with the decommissioning plan to the competent authorities.

The competent authorities shall finish examination of the above-mentioned application within 6 months.

Where the facility referred to in the first paragraph is determined to be permanent cease of operation according to Paragraph 2, Article 14 or Paragraph 4, Article 23 of the Act, the operator shall apply for decommission according to the first paragraph within 6 months commencing from the determination performed by the competent authorities.

After the facility is decommissioned according to the first paragraph, the individual annual effective dose equivalent caused to general public may not exceed 0.25mSv.

Article 20 The decommissioning plan prepared by the operator under Paragraph 1, Article 14 of the Act shall include the following contents:

1. Facility overview. 七

2. Decommissioning objectives and time schedule.

3. Decontamination methods and radioactive waste reduction measures.

4. Class, characteristics, quantity, treatment, transportation and storage of radioactive waste.

5. Radiation dosage evaluation and radiation protection measures.

6. Environmental radiation monitoring.

7. Personnel training.

8. Material and accounting records management of nuclear source material or nuclear fuel.

9. Reutilization plan of factory building or land.

10. Quality assurance program.

11. Accident response scheme.

12. Other matters designated by the competent authorities.

The decommission plan prepared by the operator under Paragraph 1, Article 23 of the Act shall include the contents as listed in the above Subparagraphs 1~7 and 9~11 as well as other matters designated by the competent authorities.

Article 21 The material and accounting records compiled under Paragraph 2, Article 15 of the Act shall be reported to the competent authorities for review before January 31 and July 31 every year; where necessary, the competent authorities may require the operator to count the inventory and report the material and accounting records within 1 months.

Article 22 The nuclear source materials below a specified weight referred to in Paragraph 1, Article 16 of the Act are as follows:

1. Welding rod, vacuum tube and incandescent gas mantle with a content of

- thorium less than 2g/piece.
2. Sunlamp, germicidal lamp, or industrial outdoor lighting lamp with a content of thorium less than 2g/lamp.
3. Lighting lamp with a content of thorium less than 0.05g/lamp.
4. Person neutron dosimeters with a content of thorium less than 0.05g/dosimeter.
5. Optical lens with a weight percentage of thorium less than 30%.
6. Photographic film, negative or print with a content of uranium or thorium less than 2g/piece.
7. Tungsten or magnesium-thorium alloy finished products or part finished products with a weight percentage of thorium in the metal proportion less than 4%.
8. Glaze-coated ceramic vessels with a weight percentage of nuclear source material in the glaze proportion less than 20%.
9. Glassware with a weight percentage of nuclear source material less than 10%.
10. Piezoelectric ceramic products with a weight percentage of nuclear source material less than 2%.
11. Rare-earth metals and their compounds, mixtures and products with a weight percentage of nuclear source material less than 0.25%.
12. Nickel-thoria alloy used for aircraft engine, with a weight percentage of thorium less than 4%.
13. Radiation source shipping containers using uranium as the shielding materials, with a weight percentage of U(235) in uranium less than 0.711%.
14. Uranium used for counterweight installed in aircraft, rocket, projectile or missile, where the weight percentage of U(235) is below 0.711%.
15. Glass bricks, ceramic bricks or other glass or ceramic products used for construction.
16. Other materials designated by the competent authorities.

Article 23 The nuclear source materials below a specified activity referred to in Paragraph 1, Article 16 of the Act are as follows:

1. Fire detectors with uranium activity below 185Bg/detector.
2. Materials with uranium and/or thorium activity complied with the standard for exemption from control of radiation sources.
3. Other materials designated by the competent authorities.

Article 24 The nuclear fuel below a specified activity referred to in Paragraph 1, Article 16 of the Act includes the following:

1. Total activity of U(233) and U(235) under 37,000Bg.
2. Plutonium activity complied with the standard for exemption from control of radiation sources.
3. Other materials designated by the competent authorities.

Article 25 The production or storage facilities of nuclear source material and/or nuclear fuel below a specified weight referred to in Paragraph 1, Article 16 of the Act are as follows:

1. Nuclear source material production facilities used for research or experiment, where the total weight of uranium and thorium in each production batch is below 10kg.
2. Nuclear fuel production facilities used for research or experiment, where the weight of U(235) in each production batch is below 100g, and plutonium and/or U(233) below 15g.
3. Nuclear source material storage facilities used for research or experiment, where the stored uranium and thorium is below 1 effective kilograms.
4. Nuclear fuel storage facilities used for research or experiment, where the stored uranium is below 1 effective kilograms, and there is no spent nuclear fuel, plutonium or U(233).
5. Other facilities designated by the competent authorities.

The effective kilograms referred to the above Subparagraphs 3 and 4 means the weight of uranium or thorium computed using the following method:

1. For uranium with a weight percentage of U(233) or U(235) not less than 1%, the effective kilograms is the product of the weight of uranium in kilogram multiplied by square of a decimal weight fraction of U(233) or U(235).
2. For uranium with a weight percentage of U(233) or U(235) not less than

0.5% but less than 1%, the effective kilograms is the product of the weight of uranium in kilogram multiplied by

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3. For uranium with a weight percentage of U(233) or U(235) less than 0.5%, the effective kilograms is the product of the weight of uranium in kilogram multiplied by 5/100,000.

4. For thorium, the effective kilograms is the product of the weight of thorium in kilogram multiplied by 5/100,000.

Article 26 Before to apply for operation license of radioactive waste treatment, storage or final disposal facilities according to Paragraph 1, Article 18 of the Act, the applicant shall submit a test run plan to the competent authorities to apply for test run at first.

After test run is finished in accordance with the above paragraph, a letter of application enclosed with the following documents shall be submitted to the competent authorities to apply for operation license:

1. Safety analysis report of the latest edition.
2. Facility operating technical specifications.
3. Test run report.
4. Accident response plan.
5. Other documents designated by the competent authorities.

The time limits for the competent authorities to examine the above-mentioned applications are as follows:

1. Examination of application for radioactive waste treatment or storage facilities shall be finished within 3 months.
2. Examination of applications for low-activity waste final disposal facilities shall be finished within 6 months.
3. Examination of applications for high-activity waste final disposal facilities shall be finished within 1 year.

Article 27 The validity period of an operation license granted under Paragraph 1, Article 18 of the Act is up to 40 years for treatment facilities or storage facilities of radioactive waste, and is up to 60 years for final disposal facilities.

Article 28 To apply for renewal of operation license according to Paragraph 2, —

Article 18 of the Act, the applicant shall submit a letter of application enclosed with the safety analysis report of the latest edition and the safety evaluation report for renewal of license to the competent authorities. Where necessary, the competent authorities may require the applicant to bring forward a decommissioning plan.

Article 29 The safety evaluation report for renewal of license and the decommission plan referred to in the preceding article shall include the contents as prescribed in Articles 10 and 11.

Article 30 The time limits for the operators to prepare reports and records according to Article 20 of the Act are prescribed as follows:

1. Annual report on operation, radiation protection and environmental radiation monitoring shall be submitted within 3 months after the termination of a year.
2. Quarterly environmental radiation monitoring report shall be submitted within 60 days after termination of each season.
3. Monthly report on the quantity of treatment, generation or storage of radioactive waste shall be submitted before the end of the next month. But it is not necessary to prepare the report during the period when the final disposal facilities of radioactive waste are under institutional control.
4. Abnormal or emergency event reports:
  - (1) Inside the nuclear reactors: report shall be prepared in accordance with related regulations on the Nuclear Reactors Facilities Regulation Act.
  - (2) Outside the nuclear reactors: information shall be made within 2 hours, and written report shall be brought forward within 30 days commencing from discovery of the event.

Article 31 The abnormal or emergency event referred to in Subparagraph 4 of the preceding article means any of the following:

1. Substantial impact to the facility operating safety or serious encumbrance to the safety operation of the operators is caused by natural disaster or other factors.
2. Safety is likely to be affected because status other than analyzed

in the safety analysis report, status beyond design standards, or status not covered in the running and emergency operation instruction book occurs during the process of running.

3. Person is injured by radioactive pollution and needs to be sent to outside the facility for medical treatment.

4. The radiation dosage received by the persons or the liquid or gas effluents discharged by the facility exceeds the value specified in the Ionizing Radiation Protection Act.

5. Accident occurs during hoisting, unloading or transportation of radioactive waste.

6. Radioactive waste is lost, stolen or damaged.

7. Other occasions recognized by the competent authorities.

Article 32 The closure plan prepared under Paragraph 2, Article 23 of the Act for an operator to close the final disposal facilities of radioactive waste shall include the following contents:

1. Organization of executor.

2. Procedure of dismantling the facilities on the ground surface and decontamination.

3. Backfill of the excavated areas.

4. Stabilization operations after the site is closed

5. Long-term safety evaluation.

6. Analysis of accidents likely to occur and response plan after closure.

7. Quality assurance program.

8. Other matters designated by the competent authorities.

Article 33 The institutional control plan worked out by the operator under Paragraph 2, Article 23 of the Act for closure of the final disposal facilities of radioactive waste shall include the following contents:

1. Organization of executor.

2. Site security.

3. Environmental radiation monitoring. —三—

4. Quality assurance program.

5. Record and archive management.

6. Other matters designated by the competent authorities.

Article 34 Only provided that the annual effective dose equivalent caused by final disposal facilities of radioactive waste to general public is lower than 0.25mSv, the operator may apply for the competent authorities to approve reuse of the lands or exemption from control according to Article 24 of the Act.

For the application referred to in the preceding paragraph, a letter of application enclosed with the environmental impact analysis document approved by the competent authority of environmental protection and the radiation safety evaluation report including the following contents shall be submitted:

1. Description of the final disposal facilities and the ambient areas.

2. Data of environmental radiation monitoring during the operation, closure and institutional control period.

3. Natural and human activities impacting the final disposal facilities and the adjacent areas during the operation, closure and institutional control period.

4. Land reutilization plan.

5. Radiation safety evaluation for land reutilization.

6. Other matters designated by the competent authorities.

The competent authorities shall finish examination of the application referred to in Paragraph 1 within 6 months.

Article 35 For the qualifications and training as well as the application, validity period and renewal of certificate for the operators of treatment facilities of radioactive waste, the provisions concerning the operators of nuclear source material production facilities as prescribed in Article 14 and Article 15 shall apply.

Article 36 Those who generate low-activity waste other than prescribed in Paragraphs 2 and 3, Article 49 of the Act or take charge of the final disposal of low level waste, shall submit a low level waste final disposal plan within 1 year commencing from enforcement of the

Act, and bring the plan into real effect after it is approved by the

competent authorities; and shall report the semiannual execution results before the end of February and August every year.

To amend the low level waste final disposal plan or the time schedule of the plan, reasons and correction measures shall be reported to the competent authorities for approval prior to execution.

Article 37 Those who generate high level waste other than prescribed in Paragraphs 2 and 3, Article 49 of the Act or take charge of the final disposal of high level waste, shall submit a high level waste final disposal plan within 2 years commencing from enforcement of the Act, and bring the plan into real effect after it is approved by the competent authorities; and shall report the execution results of the previous year and the working plan of the next year before the end of February and October every year.

The high level waste final disposal plans shall be reviewed and amended every 4 years. Upon amendment, reasons and correction measures shall be reported to the competent authorities for approval prior to execution.

Article 38 The formats of the application letters and forms, certificates and certification documents referred to in the Act shall be prescribed by the competent authorities.

Article 39 These Rules shall become effective as of the date of promulgation. 一五