REGULATION OF THE COUNCIL OF MINISTERS

of 3 December 2002

on radioactive waste and spent nuclear fuel

(Journal of Laws no. 230, item 1925)

Pursuant to the provisions of art. 51 and art. 55 of the Atomic Energy Law of 29 November 2000 (Journal of Laws of 2001, no. 3, item 18, no. 100, item 1085, no. 154, item 1800, and of 2002, no. 74, item 676 and no. 135, item 1145), the following is ordained:

Chapter 1

General Provisions

§ 1. This Regulation defines:

1) the manner of qualifying radioactive waste into categories and sub-categories;

2) the manner of registering and controlling radioactive waste and the sample registration card;

3) the terms of storage of radioactive waste or spent nuclear fuel and the requirements imposed on sites, compartments and packaging intended for the storage of various radioactive waste categories, and the requirements imposed on the spent nuclear fuel stores;

4) categories and sub-categories of radioactive waste which may be disposed in various types of repositories;

5) detailed requirements imposed on various types of repositories – location, operation, construction and closure;

6) requirements imposed on repositories aspiring to the status of National Radioactive Waste Repository;

7) detailed requirements regarding the preparation of radioactive waste for disposal.

§ 2. The following terms shall be assigned the following meanings under this regulation:

1) "license" – shall mean the license for conducting operations which involve exposure to ionising radiation;

2) "isotopes" – shall mean radioactive isotopes;

3) "short-lived isotopes" – shall mean isotopes whose half-life does not exceed 30 years;

4) "long-lived isotopes" – shall mean isotopes whose half-life exceeds 30 years;

5) "radioactive concentration of isotope in waste" – shall mean the radioactivity of isotope in 1 kilogram of waste;

6) "sealed radioactive source" – shall mean radioactive source whose structure prevents the radioactive substance from leaking into the environment under conditions set for its application.

Chapter 2

Manner of Qualifying Radioactive Waste Into Categories and Sub-Categories

§ 3. 1. Waste shall be qualified to the category of low-level radioactive waste, with a reservation for the provisions of §4, if the radioactive concentration of the isotope in waste exceeds the value set forth in Annex no. 1 hereto, but not more than ten thousand times.

2. In relation to waste containing various radioisotopes, such waste shall be qualified to the category of low-level radioactive waste, with a reservation for the provisions of §4, if the sum of the ratios of radioactive concentrations of every isotope in waste to the values set forth in Annex no. 1 exceeds 1 but does not exceed 10,000.

3. Liquid waste containing one isotope where the radioactive concentration of that isotope does not exceed the value set forth in Annex no. 1, generated over a period not exceeding 30 days as the result of operations involving exposure to ionising radiation, shall be qualified to the category of low-level

radioactive waste if isotope radioactivity exceeds the value of radioactivity set forth in Annex no. 1 by more than one thousand times.

4. Low-level radioactive waste shall be inclusive of liquid waste containing more than one isotope where the total ratio of radioactive concentration of every isotope to the values set forth in Appendix no. 1 does not exceed 1, generated over a period not exceeding 30 days as the result of operations involving exposure to ionising radiation, if the total ratio of isotope radioactivity to the value of radioactivity set forth in Appendix no. 1 exceeds 1,000.

§ 4. Low-level radioactive waste shall not be inclusive of earth or rock mass removed or transported in the course of an investment process or mining operation, including processing, which contains natural radioisotopes, if the sum of the ratios of maximum concentrations of isotopes, resulting from the non homogeneity of waste, to the values set forth in Annex no. 1 does not exceed 10 for the representative waste sample with the weight of 1 kg.

§ 5. 1. Radioactive waste shall be qualified into the medium-level radioactive waste category if the radioactive concentration of isotope in waste exceeds the value set forth in Annex no. 1 by more than ten thousand times, but not more than ten million times.

2. Waste containing various radioisotopes shall be qualified into the medium-level radioactive waste category if the sum of ratios of radioactive concentrations of every isotope in waste to the values set forth in Annex no. 1 exceeds 10,000, but does not exceed 10,000,000.

§ 6. 1. Radioactive waste shall be qualified into the high-level radioactive waste category if the radioactive concentration of isotope in waste exceeds the value set forth in Annex no. 1 by more than ten million times.

2. Waste containing various radioisotopes shall be qualified into the high-level radioactive waste category if the total ratio of radioactive concentration of every isotope in waste to the values set forth in Annex no. 1 exceeds 10,000,000.

§ 7. Low-level, medium-level and high-level radioactive waste shall be divided into the following sub-categories:

1) transient waste – if radioactive concentration of isotopes in waste at the moment of generation is at a level such as to decrease below the values set forth in §3 in the course of 3 years;

2) short-lived waste – if waste contains short-lived isotopes and:

a) the average radioactive concentration of long-lived isotopes in waste does not exceed 400 kBq/kg,

b) the maximum radioactive concentration of long-lived isotopes in waste, resulting from the non homogeneity of material in a representative sample of 1 kg, does not exceed 4,000 kBq/kg;

3) long-lived waste – if average radioactive concentration of long-lived isotopes in waste exceeds 400 kBq/kg.

§ 8. Spent sealed radiation sources shall be qualified into the following sub-categories subject to the level of radioactivity:

1) low-level – if isotope radioactivity exceeds the values set forth in Annex no. 1 hereto, but does not exceed 10^8 Bq;

2) medium-level – if isotope radioactivity exceeds 10^8 Bq, but does not exceed 10^{12} Bq;

3) high-level – if isotope radioactivity exceeds 10^{12} Bq.

§ 9. 1. Categories and sub-categories of radioactive waste, as per §3-7, shall be defined based on the measurement of ionising radiation emitted by waste and the calculation of radioactive concentration of isotopes in waste handed over for storage, processing or disposal, and in relation to radioactive waste as per §3 sections 3 and 4, also based on the calculation of isotope radioactivity.

2. Categories and sub-categories of spent sealed radiation sources, as per §8, shall be defined based on the calculation of radioactivity or measurement of emitted ionising radiation.

3. Radioactive waste may not be dissolved to lower the radioactive concentration of isotopes in such waste below the values set forth in §3.

Chapter 3

Manner of Registering and Controlling Radioactive Waste and Sample Registration Card

§ 10. 1. The manager of an organisational entity which generates radioactive waste shall register waste in registration cards, separately for every package of radioactive waste.

2. A sample registration card, as per section 1 above, is presented in Annex no. 2 hereto.

§ 11. 1. Registration cards shall be transmitted together with radioactive waste during every operation involving the handling of waste (transport, storage, processing and disposal).

2. Copies of registration cards as per section 1 above shall be stored by the person transmitting them for minimum 3 years from the date of delivery.

3. If the level of radioactive concentration of isotopes in radioactive waste decreases below the values set forth in §3 sections 1 and 2 above, and if the requirements as per §3 sections 3 and 4 above are not met, the following entries shall be made in the "Control Results" section in the registration card:

1) date and manner of determination of the decrease in radioactive concentration;

2) full name of person determining the decrease in radioactive concentration;

3) manner of subsequent handling of waste which ceased to be radioactive waste.

4. In relation to radioactive waste disposed off to the environment on the terms defined in the license, the following entries shall be made in the "Control Results" section in the registration card:

1) date and manner of confirming that licensing requirements have been met;

2) full name of person confirming that licensing requirements have been met;

3) manner of subsequent handling of radioactive waste.

5. Registration cards containing information as per sections 3 and 4 above shall be stored for three years from the date of the last entry.

6. Registration cards in respect of radioactive waste handed over for disposal shall be kept over the period of disposal.

§ 12. 1. The manager of an organisational entity which accepts radioactive waste for storage, processing or disposal shall keep an electronic data base in view of registration cards as per §10 above, and a common registration system for various operations involving the handling of radioactive waste.

2. The common registration system shall contain the following data:

1) name of organisational entity handing over radioactive waste;

2) identification symbol of packaging;

3) physical and chemical properties of radioactive waste;

4) total radioactivity of every isotope in radioactive waste;

5) manner of processing radioactive waste;

6) place of storage of radioactive waste;

7) in relation to radioactive waste handed for disposal – date of handing over and marking the facility where radioactive waste is disposed.

3. Common registration system data shall be copied to electronic data carriers as of 31 December of the given year. Copies shall be stored at locations adequately protected against the loss or damage of data.

4. Copies as per section 3 above shall be stored for three years from the end of the year of compilation.

5. The manager of an organisational entity as per section 1 above shall submit data, as per section 2 above, to the President of the National Atomic Energy Agency in written form by 31 January, covering the calendar year preceding the submission.

§ 13. 1. With a reservation for the provisions of §14-16, the control of radioactive waste shall involve the confirmation of radioactive waste status for compliance with the registration card, and shall be inclusive of the following control measures:

1) examination;

2) measurement of emitted ionising radiation;

3) measurement of weight or volume of radioactive waste.

2. Control measures shall be indicated in the registration card of radioactive waste at least once a year, including the date and the personal data of the controlling party.

§ 14. Radioactive waste stored in the radioactive waste store on the premises of the radioactive waste repository shall be controlled by monitoring the environment as per §44 section 1 point 6.

§ 15. The control of radioactive waste as per §11 section 3 point 3 shall be inclusive of the following control measures:

1) 1) the correctness of qualifying waste as non-radioactive waste shall be verified in the registration card of waste;

2) the correctness of selecting the manner of subsequent handling of waste shall be verified.

§ 16. The control of radioactive waste as per §11 section 4 shall be inclusive of the following control measures:

1) 1) the correctness of the assumption that licensing requirements have been met shall be verified;

2) the correctness of selecting the manner of subsequent handling of waste shall be verified.

Chapter 4

Terms of Storage of Radioactive Waste or Spent Nuclear Fuel and the Requirements Imposed on Sites, Compartments and Packaging Intended for the Storage of Various Radioactive Waste Categories

§ 17. 1. Radioactive waste and spent nuclear fuel shall be stored in a manner which ensures adequate protection of the general public and the environment under normal circumstances and in the case of radiological emergency, including protection against spillage, dispersion or release.

2. Radioactive waste shall be stored in conditions enabling segregation in accordance to respective categories and sub-categories.

§ 18. 1. Radioactive waste shall be stored in a facility or room (radioactive waste store) equipped with devices for mechanical or gravitational ventilation and for purification of air removed from the facility. Such devices shall be of at least of B fire resistance category in accordance with building construction regulations and shall be protected from flooding with water.

2. Spent nuclear fuel stores shall be subject to the requirements as per section 1.

3. The entrance to a spent nuclear fuel store and a radioactive waste store shall be signposted.

4. A sample sign board for a spent nuclear fuel store is presented in Annex no. 3 hereto.

5. A sample sign board for a radioactive waste store is presented in Annex no. 4 hereto.

6. The external walls and ceilings of a radioactive waste store and the spent nuclear fuel store or the applied shields shall protect members of the general public from receiving an annual effective dose exceeding 0.1mSv in respect of all types of exposure.

§ 19. Radioactive waste stores and spent nuclear fuel stores shall be equipped with:

1) dosimetric equipment suitable for the type of emitted ionising radiation;

2) permanent or movable radioactivity shields;

3) means of personal protection against radioactive contamination and irradiation;

4) water supply and sewer systems – subject to need.

§ 20. 1. The store for radioactive waste which does not generate gas shall be equipped with ventilation to prevent condensation on the surface of packaging and store walls.

2. The store for radioactive waste which generates gas or which could lead to the radioactive contamination of air shall be equipped with mechanical ventilation which minimises the concentration of generated gas or contamination to a level negligible from the point of view of radiation protection.

§ 21. Facilities equipped with a special sewer system for the disposal of liquid radioactive waste shall comprise at least two reservoirs to ensure the continuity of the process of waste receiving.

§ 22. 1. Packaging intended for the storage of radioactive waste (steel, concrete or plastic reservoirs or containers, drums or plastic bags) shall be adjusted to the state of matterand physical and chemical properties of radioactive waste.

2. Packaging material shall not react with radioactive waste.

§ 23. 1. Solid radioactive waste shall be stored in steel, concrete or plastic containers, drums or plastic bags with thickness exceeding 0.5 mm.

2. Plastic bags shall be used solely for the storage of low-level waste.

§ 24. Radioactive waste classified into various categories in different states of matter shall not be stored in the same packaging.

§ 25. Liquid radioactive waste shall be stored in steel reservoirs with a chemical-resistant inner layer, concrete reservoirs sealed on the interior with a chemical-resistant layer, or laminated plastic containers, with a reservation for the provisions of §26.

§ 26. In facilities not equipped with a special sewer system, liquid radioactive waste shall be stored in stainless steel or plastic containers or reservoirs whose volume does not exceed 100 dm^3, and in glass or ceramic containers protected from mechanical damage whose volume does not exceed 25 dm^3.

§ 27. Reservoirs or containers for the storage of liquid radioactive waste shall be placed in a steel or concrete tank with a chemical-resistant inner layer whose volume shall be at least equivalent to the volume of the reservoir or container.

§ 28. 1. Liquid radioactive waste which contains :

1) alpha-ray isotopes;

2) isotopes whose half-life does not exceed 65 days

shall be stored in separate reservoirs and containers than other liquid radioactive waste

2. Liquid radioactive waste containing:

1) organic solvent, extraction solvent and oil, or

2) detergents with a concentration higher than 10 mg/dm^3, or

3) compounding substances with a concentration higher than 10 mg/dm^3, or

4) dissolved substances and deposits with a concentration higher than 10 g/dm^3 in terms of dry residue

shall be stored separately from each other and the waste as per section 1.

§ 29. The packaging of medium-level and high-level radioactive waste shall be labelled with information on maximum waste storage temperature and maximum packaging temperature which cannot be exceeded for this packaging.

§ 30. 1. After cooling in the pool at the reactor site, spent nuclear fuel shall be stored in a wet (water environment) or dry (neutral gas environment) storage conditions ensuring that the allowable temperature on the surface of the spent fuel element for the given type of nuclear fuel is not exceeded and preventing a self-sustained fission reaction (maintaining of subcriticality).

2. The depletion of stored spent nuclear fuel may be taken into account in calculations of subcriticality.

3. Subcriticality shall be maintained by:

1) keeping of adequate distance between spent fuel elements;

2) application of neutron absorbers.

§ 31. Spent nuclear fuel shall be stored in conditions established taking into account the data contained in the documentation transmitted together with the spent nuclear fuel, including:

1) characteristics and design documentation of nuclear fuel;

2) specification of initial abundance of all fissile isotopes;

3) identification numbers of spent fuel elements or assemblies assigned by the producer;

4) information on the exploitation of nuclear fuel, in particular its depletion, maximum thermal power of the fuel element assembly during irradiation, residual heat generation and date of loading and unloading of nuclear fuel from reactor core;

5) information on the conditions of storage of spent nuclear fuel in a near-reactor pool, in particular physical and chemical specification of water and damages to the spent fuel element can.

§ 32. 1. Wet storage of spent nuclear fuel shall be subject to control including the verification of:

1) quantity and distribution of fuel;

2) 2) water parameters: specific activity, temperature, chemical composition and electrical

conductivity;

3) water level in pond;

4) tightness of pond;

5) dose rate of ionising radiation and radioactive contamination in storage area and its

surroundings.

2. Dry store containing spent nuclear fuel shall involve be subject to control including the verification of:

1) quantity and distribution of fuel;

2) tightness of containers with spent fuel elements;

3) temperature of spent fuel elements;

3) 3) dose rate of ionising radiation and radioactive contamination in the storage area and its

surroundings.

§ 33. In the event of damage of the spent fuel element can (damage of nuclear fuel), in particular confirmed on the basis of control results as per §32, the element shall be sealed in a container which prevents leakage of radioactive substance.

Chapter 5

Categories and Sub-categories of Radioactive Waste Which May be Disposed in Various Repository Types

§ 34. 1. Short-life radioactive waste: low-level, medium-level and spent sealed short-life radiation sources: low-level, medium-level and high-level, may be disposed in above-ground repositories, with a reservation for the provisions of §35.

2. All types of radioactive waste may be disposed in underground repositories, with a reservation for the provisions of §35.

§ 35. Radioactive waste may not be disposed in a repository if the applicable license excludes the possibility of disposing the given type of radioactive waste in a repository in view of the waste's physical and chemical properties, in particular isotopic composition, combustibility properties, gas generation, biological degradation, water content, presence of compounding substances, explosiveness or generated heat.

Chapter 6

Detailed Requirements Imposed On Various Types of Repositories – Location Selection, Construction, Operation and Closure

§ 36. Nuclear waste repositories shall be located, built, operated and closed in a manner which ensures that members of the general public shall not receive an annual effective dose exceeding 0.1mSv in respect of all types of exposure from

1) above-ground repositories for over 500 years,

2) underground repositories for over 10,000 years.

§ 37. Underground and above-ground repositories of radioactive waste shall be located in areas where the natural environment is subject to mild evolution and the resulting conditions may be reliably forecast in respect of the time periods as per §36.

§ 38. Underground repositories of nuclear waste shall not be located:

1) in areas characterised or threatened by the impact of sudden phenomena, including:

a) floods of higher probability than for 500-year water,

b) intense natural seismic activity or seismic activity resulting from human activity,

c) intense tectonic activity and in fault zones,

d) movement of earth or rock mass;

2) in areas characterised by:

a) ground subsidence or sinking,

b) carstic or tunnelling phenomena,

c) intense linear or surface erosion (water and wind);

3) in urban areas, concentrated settlement areas and areas of high social (cultural, recreational, health) value;

4) in protected areas of water intakes and inland water reservoirs;

5) in areas of supply of main and usable underground water reservoirs;

6) in areas where:

a) mining activity is conducted;

b) mining deposits have been documented, if the location or properties of the deposit could have an adverse impact on the repository.

§ 39. An above-ground repository of nuclear waste shall not be located in areas as per §38 and:

1) below the ground water table and in areas which may be subject to permanent or periodic flooding;

2) in areas characterised by short water circulation routes, resulting in fast migration of pollutants into the biosphere or underground reservoirs of usable water;

3) below the surface level of rivers or lakes in the vicinity;

4) in areas threatened by inundation, flooding with melted snow or torrential rain.

§ 40. Underground repositories shall be located in geological formations with adequate thickness and cross pitch for repository facilities and safety pillars.

§ 41. 1. Prior to the selection of locations for underground and above-ground repositories for radioactive waste, the considered locations shall be inspected in view of the following:

1) social and economic conditions, including:

a) demographic conditions,

b) urban planning,

c) ownership structure,

d) cultural and aesthetic values;

2) natural and geographic features, including:

a) geological structure and its evolution,

b) geomorphology and its evolution,

c) occurrence of natural resources and their significance,

d) hydrogeological conditions, including geochemical ones,

e) hydrological conditions,

f) meteorological and climatic conditions,

g) threats to the stability of the area posed by natural processes and economical development.

2. Geological works shall be designed and performed and geological documentation shall be developed in accordance with the provisions of geological and mining law.

3. Nuclear safety and radiation protection analysis for the given repository shall be performed in view of inspection results as per section 1.

4. Above-ground repositories shall be designed and built in accordance with the provisions of the building construction law.

§ 42. The entrance to an above-ground and underground repository shall be signposted. A sample sign board is presented in Annex no. 5 hereto.

§ 43. Underground repositories of radioactive waste shall be built and operated in accordance with the provisions of geological and mining law concerning waste storage in an orogen.

§ 44. 1. During the operation of an above-ground repository of radioactive waste, the following shall be ensured:

1) free areas between packaging in repository facilities shall be filled with materials which prevent the propagation of isotopes from radioactive waste;

2) the exposure to precipitation of a repository facility filled with radioactive waste shall be limited, if filling works must be conducted during precipitation;

3) packaging shall be disposed in repository facilities in a manner which prevents their damage under the influence of their own weight;

4) collection of effluent and treatment if required;

5) the following shall be disposed in separate facilities:

a) low-level and medium-level short-lived radioactive waste,

b) spent sealed low-level and medium-level radiation sources,

c) spent sealed high-level radiation sources;

6) environmental monitoring, including especially:

a) measurement of radioactive substance content:

- in surface water in the vicinity of the repository,
- in ground water on the repository site, drainage and ground water in the vicinity of the site,
- water supplied to the repository site and its vicinity,
- in the air on the repository site,
- in grass and ground on the repository site and in its vicinity,

b) measurements of:

- dose rate of gamma radiation on the repository site and in its vicinity,
- radioactive contamination on the repository site and on the surface of roads in the vicinity,

c) hydrological surveillance:

- measurement of the location of ground water-table on the site and in the vicinity,
- measurement of the volume of precipitation on the site and in the vicinity,

d) hydrogeochemical analyses.

2. During the operation of an underground repository of radioactive waste the requirements defined in section 1 points 1, 3 and 6 shall be satisfied.

§ 45. Surface repository facilities for the storage of radioactive waste shall satisfy the following conditions:

1) at least B-class fire resistance requirements in accordance with building construction regulations;

2) water permeability defined by coefficient lower than 10^{-9} meters per second (m/s);

3) conditions resulting from the physical and chemical properties of the stored radioactive waste and the volume of radioactive waste delivered to the repository.

§ 46. Underground and above-ground repositories of radioactive waste shall comprise the following operational sections:

1) technical back-up facilities;

2) facilities for the disposal of radioactive waste;

3) construction site facilities, if the repository is undergoing expansion during operation.

§ 47. Underground and above-ground repository facilities shall be built in a way ensuring that:

1) design requirements concerning storage safety are regularly monitored;

2) the repository is closed before the date set forth in the design;

3) works relating to repository closure can be completed.

§ 48. 1. An above-ground repository of radioactive waste shall be equipped with a drainage system for controlling the flow of precipitation water on the site and in the vicinity. The drainage system shall prevent the stored waste from being penetrated by water under normal conditions and in the case of a radiological emergency.

2. The drainage system as per section 1 above shall be designed and built in a manner which ensures that the system:

1) is adapted to the anticipated ground sedimentation at the base under the load exerted by repository facilities;

2) is resistant to the chemical properties of infiltrating precipitation water;

3) can be controlled and monitored;

4) shall function effectively during the operation of the repository and during 50 years after its closure, unless a longer time frame is set forth in the construction license;

5) shall cover the entire area of the repository base;

6) the repository base is adequately profiled to ensure effective flow of water to drains;

7) drainage water is evacuated to a retention reservoir.

§ 49. Underground and above-surface repositories shall feature the option of dosimetric control of the delivered radioactive waste.

§ 50. 1. After the end of operation, a radioactive waste repository shall be closed down in a manner which prevents the following:

1) infiltration of precipitation water inside the repository;

2) unconscious penetration by man;

3) damaging impact of plants and animals.

2. An underground repository of radioactive waste shall be closed down after the end of operation in the manner described in section 1 points 1 and 2 and in the manner which prevents the leakage of gaseous products.

§ 51. An underground repository of radioactive waste shall be closed down in accordance with the provisions of geological and mining law concerning waste storage in an orogen.

§ 52. 1. After closure, the area of an underground and above-ground repository of radioactive waste shall be subject to physical protection subject to the threat which could be posed by the repository as the result of unconscious or wilful action of man, and shall be signposted as per §42.

2. Physical protection and signs as per section 1 shall be removed after the repository has been decommissioned.

Chapter 7

Requirements Imposed on Repositories Aspiring to the Status of the National Radioactive Waste Repository

§ 53. An above-ground repository may be classified as a National Radioactive Waste Rerpository if, in the course of at least 11 months per year, the following requirements imposed on the acceptance of radioactive waste are met for the purpose of:

1) disposal of:

a) short-lived low-level and medium-level radioactive waste,

b) spent sealed short-lived low-level and medium-level radiation sources;

2) storage of:

a) long-lived low-level and medium-level radioactive waste;

b) spent sealed long-lived low-level and medium-level radiation sources.

§ 54. An underground repository may be classified as a National Radioactive Waste Repository if, in the course of at least 11 months per year, the requirements imposed on the acceptance for disposal of all categories radioactive waste are met.

Chapter 8

Detailed Requirements Regarding the Preparation of Radioactive Waste For Disposal

§ 55. Prior to disposal, radioactive waste shall be:

1) processed to solid form with unbounded water content below 1%, where the speed of leaching solidified radioactive waste with distilled water:

a) of low-level waste, after 28 days of leaching in static conditions, shall not exceed 10^{-2} g cm^{-2} day^{-1},

b) of medium-level waste, after 28 days of leaching in static conditions, shall not exceed 10^{-3} g cm^{-2} day^{-1},

c) of high-level waste, after 28 days of leaching in static conditions, shall not exceed 10^{-5} g cm^{-2} day^{-1};

2) segregated into respective categories and sub-categories;

3) placed in sealed packaging to prevent the leakage of radioactive waste.

§ 56. 1. The structure of packaging for the disposal of radioactive waste shall take into account the physical and chemical properties and the categories of waste placed in it, site conditions and structure of repository.

2. Packaging dimensions shall be adjusted to the dimensions of repository facilities and to the number of packaging layers.

§ 57. 1. Packaging for the disposal of radioactive waste shall comprise concrete or steel containers with anti-corrosion protection.

2. Radioactive waste which may not be placed in packaging due to the dimension or shape of waste, and which may not be shredded in view of radiation protection guidelines, may be disposed at the repository without packaging following the introduction of adequate measures preventing the leakage of radioactive substances.

3. Spent sealed radiation sources for disposal may be delivered to the repository in reusable transport packaging and may be stored in separate repository facilities.

§ 58. The maximum dose rate on the surface of packaging containing radioactive waste for disposal shall not exceed 2 mGy/h, and at the distance of 1 m from the surface of packaging – 0.1 mGy/h, where unbounded contamination on the surface of packaging shall not exceed 40 kBq/m^2 for beta- and gamma-isotopes and 4 kBq/m^2 for alpha-isotopes.

§ 59. Packaging containing radioactive waste shall be labelled in a visible place with the following:

1) radioactivity symbol;

2) packaging identification symbol according to the registration card;

3) information on the category and sub-category of radioactive waste.

Chapter 9

Interim and Final Provisions

§ 60. The provisions of §48 shall not apply to National Radioactive Waste Repository operating on the day this regulation is enforced.

§ 61. This regulation becomes effective on 1 January 2003. 1)

President of the Council of Ministers: *L. Miller*

[1)]This regulation was preceded by a regulation of the President of the National Atomic Energy Agency of 19 May 1989 on the terms of classifying waste as radioactive waste, terms of waste classification and registration, terms of waste neutralisation, storage and disposal (Polish Monitor no. 18, item 125) which shall expire on 1 January 2003 pursuant to art. 137 of the Atomic Energy Law of 29 November 2000 (Journal of Laws of 2001, no. 3, item 18, no. 100, item 1085, no. 154, item 1800, of 2002, no. 74, item 676, no. 135, item 1145).

Annexes to the Regulation of the Council of Ministers of 3 December 2002 (item 1925)

Annex no. 1

ACTIVITY AND RADIOACTIVE CONCENTRATION OF ISOTOPES BEING THE BASIS OF QUALIFYING RADIOACTIVE WASTES

Radioactive isotope	Activity (Bq)	Radioactive concentration (kBq/kg)
1	2	3
H-3	10^9	10^6
Be-7	10^7	10^3
C-14	10^7	10^4
O-15	10^9	10^2
F-18	10^6	10

Na-22	10^6	10
Na-24	10^5	10
Si-31	10^6	10^3
P-32	10^5	10^3
P-33	10^8	10^5
S-35	10^8	10^5
CI-36	10^6	10^4
CI-38	10^5	10
Ar-37	10^8	10^6
Ar-41	10^9	10^2
K-40	10^6	10^2
K-42	10^6	10^2
K-43	10^6	10
Ca-45	10^7	10^4
Ca-47	10^6	10
Sc-46	10^6	10
Sc-47	10^6	10^2
Sc-48	10^5	10
V-48	10^5	10
Cr-51	10^7	10
Mn-51	10^5	10
Mn-52	10^5	10
Mn-52m	10^5	10
Mn-53	10^9	10^4
Mn-54	10^6	10
Mn-56	10^5	10
Fe-52	10^6	10
Fe-55	10^6	10^4

Fe-59	10^6	10
Co-55	10^6	10
Co-56	10^5	10
Co-57	10^6	10^2
Co-58	10^6	10
Co-58m	10^7	10^4
Co-60	10^5	10
Co-60m	10^6	10^3
Co-61	10^6	10^2
Co-62m	10^5	10
Ni-59	10^8	10^4
Ni-63	10^8	10^3
Ni-65	10^6	10
Cu-64	10^6	10^2
Zn-65	10^6	10
Zn-69	10^6	10^4
Zn-69m	10^6	10^2
Ga-72	10^5	10
Ge-71	10^8	10^4
As-73	10^7	10^3
As-74	10^6	10
As-76	10^5	10^2
As-77	10^6	10^3
Se-75	10^6	10^2
Br-82	10^6	10
Kr-74	10^9	10^2
Kr-76	10^9	10^2
Kr-77	10^9	10^2

Kr-79	10^5	10^3
Kr-81	10^7	10^4
Kr-83m	10^{12}	10^5
Kr-85	10^4	10^5
Kr-85m	10^{10}	10^3
Kr-87	10^9	10^2
Kr-88	10^9	10^2
Rb-86	10^5	10^2
Sr-85	10^6	10^2
Sr-85m	10^7	10^2
Sr-87m	10^6	10^2
Sr-89	10^6	10^3
Sr-90+	10^4	10^2
Sr-91	10^5	10
Sr-92	10^6	10
Y-90	10^5	10^3
Y-91	10^S	10^3
Y-91m	10^6	10^2
Y-92	10^5	10^2
Y-93	10^5	10^2
Zr-93+	10^7	10^3
Zr-95	10^6	10
Zr-97+	10^5	10
Nb-93m	10^7	10^4
Nb-94	10^6	10
Nb-95	10^6	10
Nb-97	10^6	10
Nb-98	10^5	10

Mo-90	10^6	10
Mo-93	10^8	10^3
Mo-99	10^6	10^2
Mo-101	10^6	10
Tc-96	10^6	10
Tc-96m	10^7	10^3
Tc-97	10^8	10^3
Tc-97m	10^7	10^3
Tc-99	10^7	10^4
Tc-99m	10^7	10^2
Ru-97	10^7	10^2
Ru-103	10^6	10^2
Ru-105	10^6	10
Ru-106+	10^5	10^2
Rh-103m	10^8	10^4
Rh-105	10^7	10^2
Pd-103	10^8	10^3
Pd-109	10^6	10^3
Ag-105	10^6	10^2
Ag-108m+	10^6	10
Ag-110m	10^6	10
Ag-111	10^6	10^3
Cd-109	10^6	10^4
Cd-115	10^6	10^2
Cd-115m	10^6	10^3
ln-111	10^6	10^2
ln-113m	10^6	10^2
ln-114m	10^6	10^2

ln-115m	10^6	10^2
Sn-113	10^7	10^3
Sn-125	10^5	10^2
Sb-122	10^4	10^2
Sb-124	10^6	10
Sb-125	10^6	10^2
Te-123m	10^7	10^2
Te-125m	10^7	10^2
Te-127	10^6	10^3
Te-127m	10^7	10^3
Te-129	10^6	10^2
Te-129m	10^6	10^3
Te-131	10^5	10^2
Te-131m	10^6	10
Te-132	10^7	10^2
Te-133	10^5	10
Te-133m	10^5	10
Te-134	10^6	10
l-123	10^7	10^2
l-125	10^6	10^3
l-126	10^6	10^2
l-129	10^5	10^2
l-130	10^6	10
l-131	10^6	10^2
l-132	10^5	10
l-133	10^6	10
l-134	10^5	10
l-135	10^6	10

Xe-131m	10^4	10^4
Xe-133	10^4	10^3
Xe-135	10^{10}	10^3
Cs-129	10^5	10^2
Cs-131	10^6	10^3
Cs-132	10^5	10
Cs-134m	10^5	10^3
Cs-134	10^4	10
Cs-135	10^7	10^4
Cs-136	10^5	10
Cs-137+	10^4	10
Cs-138	10^4	10
Ba-131	10^6	10^2
Ba- 140+	10^5	10
La-140	10^5	10
Ce-139	10^6	10^2
Ce-141	10^7	10^2
Ce-143	10^6	10^2
Ce-144+	10^5	10^2
Pr-142	10^5	10^2
Pr-143	10^6	10^4
Nd-147	10^6	10^2
Nd-149	10^6	10^2
Pm-147	10^7	10^4
Pm-149	10^6	10^3
Sm-151	10^8	10^4
Sm-153	10^6	10^2
Eu-152	10^6	10

Eu-152m	10^6	10^2
Eu-154	10^6	10
Eu-155	10^7	10^2
Gd-153	10^7	10^2
Gd-159	10^6	10^3
Tb-160	10^6	10
Dy-165	10^6	10^3
Dy-166	10^6	10^3
Ho-166	10^5	10^3
Er-169	10^7	10^4
Er-171	10^6	10^2
Tm-170	10^6	10^3
Tm-171	10^8	10^4
Yb-175	10^7	10^3
Lu-177	10^7	10^3
Hf-181	10^6	10
Ta-182	10^4	10
W-181	10^7	10^3
W-185	10^7	10^4
W-187	10^6	10^2
Re-186	10^6	10^3
Re-188	10^5	10^2
Os-185	10^6	10
Os-191	10^7	10^2
Os-191m	10^7	10^3
Os-193	10^6	10^2
lr-190	10^6	10
lr-192	10^4	10

lr-194	10^5	10^2
Pt-191	10^6	10^2
Pt-193m	10^7	10^3
Pt-197	10^6	10^3
Pt-197m	10^6	10^2
Au-198	10^6	10^2
Au-199	10^6	10^2
Hg-197	10^7	10^2
Hg-197m	10^6	10^2
Hg-203	10^5	10^2
TI-200	10^6	10
TI-201	10^6	10^2
TI-202	10^6	10^2
TI-204	10^4	10^4
Pb-203	10^6	10^2
Pb-210+	10^4	10
Pb-212+	10^5	10
Bi-206	10^5	10
Bi-207	10^6	10
Bi-210	10^6	10^3
BI-212+	10^5	10
Po-203	10^6	10
Po-205	10^6	10
Po-207	10^6	10
Po-210	10^4	10
At-211	10^7	10^3
Rn-220+	10^7	10^4
Rn-222+	10^8	10

Ra-223+	10^5	10^2
Ra-224+	10^5	10
Ra-225	10^5	10^2
Ra-226+	10^4	10
Ra-227	10^6	10^2
Ra-228+	10^5	10
Ac-228	10^6	10
Th-226+	10^7	10^3
Th-227	10^4	10
Th-228+	10^4	1
Th-229+	10^3	1
Th-230	10^4	1
Th-231	10^7	10^3
Th-232nat	10^3	1
Th-234+	10^5	10^3
Pa-230	10^6	10
Pa-231	10^3	1
Pa-233	10^7	10^2
U-230+	10^5	10
U-231	10^7	10^2
U-232+	10^3	1
U-233	10^4	10
U-234	10^4	10
U-235+	10^4	10
U-236	10^4	10
U-237	10^6	10^2
U-238+	10^4	10
U-238nat	10^3	1

U-239	10^6	10^2
U-240	10^7	10^3
U-240+	10^6	10
Np-237+	10^3	1
Np-239	10^7	10^2
Np-240	10^6	10
Pu-234	10^7	10^2
Pu-235	10^7	10^2
Pu-236	10^4	10
Pu-237	10^7	1
Pu-238	10^4	1
Pu-239	10^4	1
Pu-240	10^3	1
Pu-241	10^5	10^2
Pu-242	10^4	1
Pu-243	10^7	10^3
Pu-244	10^4	1
Am-241	10^4	1
Am-242	10^6	10^3
Am-242m+	10^4	1
Am-243+	10^3	1
Cm-242	10^5	10^2
Cm-243	10^4	1
Cm-244	10^4	10
Cm-245	10^3	1
Cm-246	10^3	1
Cm-247	10^4	1
Cm-248	10^3	1

Bk-249	10^6	10^3
Cf-246	10^6	10^3
Cf-248	10^4	10
Cf-249	10^3	1
Cf-250	10^4	10
Cf-251	10^3	1
Cf-252	10^4	10
Cf-253	10^5	10^2
Cf-254	10^3	1
Es-253	10^5	10^2
Es-254	10^4	10
Es-254m	10^6	10^2
Fm-254	10^7	10^4
Fm-255	10^6	10^3

DERIVATIVE ISOTOPES

Isotope	Derivative isotopes
1	2
Sr-80+	Rb-80
Sr-90+	Y-90
Zr-93+	Nb-93m
Zr-97+	Nb-97
Ru-106+	Rh-106
Ag-108m+	Ag-108
Cs-137+	Ba-137
Ba-140+	La-140
Ce-134+	La-134
Ce-144+	Pr-144
Pb-210+	Bi-210, Po-210

Pb-212+	Bi-212, TI-208, Po-212
BJ-212+	TI-208, Po-212
Rn-220+	Po-216
Rn-222+	Po-218, Pb-214, Bi-214, Po-214
Ra-223+	Rn-219, Po-215, Pb-211, Bi-211, TI-207
Ra-224+	Rn-220, Po-216, Pb-212, Bi-212, TI-208, Po-212
Ra-226+	Rn-222, Po-218, Pb-214, Bi-214, Pb-210, Bi-210, Po-210, Po-214
Ra-228+	Ac-228
TH-226+	Ra-222, Rn-218, Po-214
Th-228+	Ra-224, Rn-220, Po-216, Pb-212, Bi-212, TI-208, Po-212
Th-229+	Ra-225, Ac-225, Fr-221, Ar-217, Bi-213, Po-213, Pb-209
Th-232nat	Ra-228, Ac-228, Th-228, Ra-224, Rn-220, Po-216, Pb-212, Bi-212, TI-208, Po-212
Th-234+	Pa-234m
U-230+	Th-226, Ra-222, Rn-218, Po-214
U-232+	Th-228, Ra-224, Rn-220, Po-216, Pb-212, Bi-212, TI-208, Po-212
U-235+	Th-231
U-238+	Th-234, Pa-234m
U-238nat	Th-234, Pa-234m, U-234, Th-230, Ra-226, Rn-222, Po-218, Pb-214, Bi-214, Pb-210, Bi-210, Po-210, Po-214
U-240+	Np-240
Np-237+	Pa-233
Am-242m+	Am-242
Am-243+	Nn-239

Annex no. 2

SAMPLE REGISTRATION CARD OF RADIOACTIVE WASTE

Name and address of organisational entity where radioactive	Card no.	Card no.

<table>
<tr><td colspan="2">waste was generated</td><td></td></tr>
<tr><td colspan="2">Specification of radioactive waste:
Physical form:
Isotope composition and radioactivity of each isotope upon delivery:
Volume [m^3] Weight [kg] Number of sources:
Properties of radioactive waste:
a) liquid: pH solvent type
b) solid: type of material</td><td>Type of packaging

Packaging identification symbol</td></tr>
<tr><td colspan="2">Radioactive waste category
Radioactive waste sub-category</td><td rowspan="2">· I hereby declare that the data contained in this document is true
· I hereby declare that the packaging and its content has been prepared in accordance with transportation regulations

Date of delivery

(full name and signature of person authorised to handle radioactive waste)</td></tr>
<tr><td colspan="2">Radiation measurements:
Dose rate on the surface of transport packaging

Type of device:
I hereby confirm the absence of unbounded contamination on external packaging (type of device)

(full name and signature of person authorised to conduct measurements)</td></tr>
<tr><td colspan="2">Name and address of entity transporting radioactive waste</td><td>(full name and signature of person responsible for the transport of radioactive waste)</td></tr>
<tr><td colspan="2">Name and address of entity accepting radioactive waste</td><td>(full name and signature of person authorised to accept radioactive waste)</td></tr>
<tr><td>Manner of processing radioactive waste

(date and signature of authorised person)</td><td>Storage / Disposal[1])

Location
Site no.
Compartment/chamber no.</td><td>Date of transport to repository

(signature of authorised person)</td></tr>
</table>

Number of source registration cards

[1]) Cross out where not applicable:

Verification of the condition of radioactive waste for compliance with registration card prepared in organisational entity which generated the waste:

1. 1. Date
2. 2. Full name and signature of controlling person
3. 3. Control measures
4. 4. Type of radiation measurement device
5. 5. Control results

1. 1. Date
2. 2. Full name and signature of controlling person
3. 3. Control measures
4. 4. Type of radiation measurement device
5. 5. Control results

1. 1. Date
2. 2. Full name and signature of controlling person
3. 3. Control measures
4. 4. Type of radiation measurement device
5. 5. Control results

Verification of the condition of radioactive waste for compliance with registration card prepared in organisational entity which accepted radioactive waste for further handling:

1. 1. Date
2. 2. Full name and signature of controlling person
3. 3. Control measures
4. 4. Type of radiation measurement device
5. 5. Control results

1. 1. Date
2. 2. Full name and signature of controlling person
3. 3. Control measures
4. 4. Type of radiation measurement device
5. 5. Control results

1. 1. Date
2. 2. Full name and signature of controlling person
3. 3. Control measures
4. 4. Type of radiation measurement device
5. 5. Control results

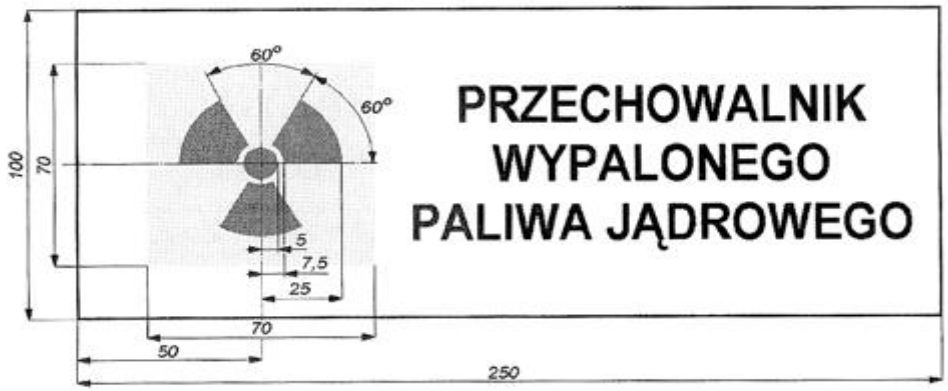
White fields are filled out by authorised persons in the organisational entity which generated radioactive waste.

Grey fields are filled out by authorised persons in the organisational entity transporting radioactive waste and the organisational entity which is the consignee of radioactive waste.

Annex no 3

SAMPLE SIGN BOARD FOR SPENT NUCLEAR FUEL STORE

WZÓR TABLICY INFORMACYJNEJ DO OZNACZENIA PRZECHOWALNIKA WYPALONEGO PALIWA JĄDROWEGO*



* Wymiary podano w milimetrach; kolor tła symbolu promieniowania jonizującego — czerwony.

Annex no 4

SAMPLE SIGN BOARD FOR RADIOACTIVE WASTE STORE

WZÓR TABLICY INFORMACYJNEJ DO OZNACZENIA MAGAZYNU ODPADÓW PROMIENIOTWÓRCZYCH*

* Wymiary jak w tablicy zawartej w załączniku nr 3 do rozporządzenia; kolor tła symbolu promieniowania jonizującego — żółty, kolor symbolu promieniowania jonizującego — czerwony.

Annex no 5

SAMPLE SIGN BOARD FOR RADIOACTIVE WASTE REPOSITORY

WZÓR TABLICY INFORMACYJNEJ DO OZNACZENIA SKŁADOWISKA ODPADÓW PROMIENIOTWÓRCZYCH*

* Wymiary jak w tablicy zawartej w załączniku nr 3 do rozporządzenia; kolor tła symbolu promieniowania jonizującego — żółty, kolor symbolu promieniowania jonizującego — czerwony.