

Decree 47/2003 (VIII. 8.) ESZCSM
of the Minister of Health, Social and Family Affairs
on certain issues of interim storage and final disposal of radioactive wastes,
and on certain radiohygiene issues of naturally occurring radioactive materials
concentrating during industrial activity

Based on the authorization provided by paragraphs *k*, *l*) and *p*) of subsection (2) of section 68 of the Act CXVI of 1996 on Atomic Energy, and by subsection (e) of section 9 of Act XI of 1991 on the National Public Health and Medical Officer Service I order as follows:

Section 1

- (1) The tenor of this decree shall apply
 - a*) radioactive wastes except for the tenor of subsection (2),
 - b*) activities concentrating, accumulating the natural isotopes that are *listed in Annex 1*,
 - c*) those natural persons and economic organizations (subsection c) of section 685 of the Civil Code), who construct, modify, operate, terminate or close interim radioactive waste storage facility or final radioactive waste disposal facility, and at who radioactive waste is generated, and who perform activities according to paragraph b).
- (2) The tenor of this decree shall not apply to the interim storage of radioactive waste in case the user of atomic energy collects the radioactive waste – latest until its transport or its decay below the exemption level – at the site of the performed activity in storage units complying with the conditions of the activity license.
- (3) The viewpoints for the classification of the radioactive wastes are contained in the *Annex 2*.

Definitions

Section 2

- (1) In the application of this decree:
 - a*) [repealed]
 - b*) *safety assessment*: analysis of impacts and risks – for example for the construction and operation of interim storage or final disposal facility – considering both the designed normal operating conditions and the not designed (accident) situations;
 - c*) *safety analysis report*: documentation summarizing the results of the safety assessment, constituting the basis for licensing;
 - d*) *isolation*: sealing of radioactive waste from the human environment in a way that the impact evoked by the radioactive waste discharged to the environment under normal conditions or due to abnormal events remains under the limits determined by the competent authority;
 - e*) *clearance level*: means the value expressed in activity concentration or in activity units, determined by the licensing authority, at which, or under which radiation sources or activities can be taken out of regulatory supervision; the authority can stipulate this procedure to conditions;

- f) *barrier*: such physical or chemical obstacle that prevents or delays the movement (migration) of the radioisotopes or other materials between the components of some system; usually the barrier can be of artificial (engineering) or natural type, in this last case it is an integral part of the environment of the disposal facility;
- g) *waste acceptance requirement*: requirements in the waste management process formulated by the organization responsible for the later phase of the waste management process for the organization performing the earlier phase of the waste management process regarding the physical-chemical form, isotope-composition, activity, packaging of the waste;
- h) *waste package*: product generated as a result of conditioning of radioactive waste, it contains the waste form, some kind of packaging (e.g. container) or the internal barriers (e.g. absorber materials and internal coatings).
- i) *waste disposal system*: complex system of the waste disposal facility and its environment, including the engineering systems of the facility, the waste packages and the geological environment (leading to the biosphere);
- j) *lifetime of the waste disposal system*: the period, following which the activity concentration or the activity of the stored waste decreases to the clearance (exemption) level; the lifecycle of the waste disposal facility can be resolved into siting, construction, operation, (maybe modification), closure and regulatory inspection phases;
- k) *waste form*: the physical and chemical form of the waste after treatment or conditioning, but before packaging; the waste form is one component of the waste package;
- l) [repealed]
- m) *conditioning*: operations by the application of which the waste package becomes suitable for transportation, storage or final disposal; conditioning can mean the conversion of the waste from liquid phase to solid phase, the disposal of the waste into containers, or – if necessary – a secondary containerization;
- n) *closure (final)*: actions performed at the end of the operating period of the waste disposal facility, or the so developed conditions; a disposal facility is finally closed following the disposal of waste, when in case of shallow land disposal facilities adequate coverings (layers) are developed, while in case of deep geological disposal facilities the facility itself and its shafts are filled back or sealed;
- o) *exemption level*: means the activity concentration or total activity determined by a separate law¹, below which any material or product containing radioactive material is exempted from regulatory supervision;
- p) *instrumental control (monitoring)*: means the activity to be performed by the operator according to determinations of the programme approved by the licensing authority; measurement of dose or dose-rate, activity or activity concentration in order to identify or control the radiation or contamination, including the analysis and evaluation of measurement results;
- q) *Radiohygiene De-centre (hereinafter referred to as: RD)*: the radiohygiene de-centre determined by the government decree on the National Public Health and Medical Officer Service, fulfilment of public health administration tasks and on the designation of the pharmacy state administration organization;

¹ Govt. Decree 124/1997 (VII.18.) Korm; Decree 23/1997 (VII.18.) NM of the Minister of Welfare

- r) *design basis*: such sequence of information (data) regarding the whole system or one of its components that describes the desired operation, environmental conditions and circumstances of a system or component and that contains the list of parameters necessary for 0 of its task, indicating also their value or range,
 - ra) the values can be originated from the generally accepted practice or can be obtained by analysis of postulated accidents or external events,
 - rb) the system or component fulfils its function under the conditions and circumstances described in the design basis;
 - s) *retrievability*: planned opportunity of retrieval of waste from the disposal facility, which is planned to be final but not closed or sealed (not back-filled) yet.
 - t) *operator*: licensee holding the operation license.
- (2) In case of the concepts that are not defined under subsection (1), regarding the application of this decree the definitions formulated at Section 2 of Act CXVI of 1996 on Atomic Energy and at Part II of Annex 1 of Decree 16/2000 (VI.8.) EüM of Minister of Health on implementation of certain orders of Act CXVI of 1996 shall be applied.

Regulations concerning the interim storage and final disposal of radioactive waste

Section 3

- (1) The radioactive waste shall be stored in an interim waste storage or final waste disposal facility in accordance with the prescriptions of this decree.
- (2) Concerning the interim waste storage facility and the final waste disposal facility a license, issued by the RD is necessary for the
 - a) construction (construction license),
 - b) operation (operation license),
 - c) modification (modification license),
 - d) termination (termination license), and
 - e) closure (closure license)
 - f) and for the change-over to active or passive regulatory inspection.
- (3) The conduction of licensing procedures listed in subsection (2) shall be performed based on the application of a natural person or economic organization determined by paragraph c) of subsection (1) of section 1.
- (4) [repealed]

Section 4

- (1) In the interim waste storage facility and in the final waste disposal facility radioactive waste can be stored in such form that complies with the safety requirements and with the prescriptions of the regulatory license.
- (2) During operation, modification, termination, or closure the radiation exposure of employees and the population shall not exceed the dose constraints determined by the National Office of the Chief Medical Officer (NOCMO) in the course of the construction licensing procedure.

Section 5

- (1) The operator of the interim waste storage facility and the final waste storage facility, by considering the disposal requirements, determines the waste acceptance requirement system that shall be approved by the RD.
- (2) The waste acceptance requirement system shall be determined by taking into account the following:
 - a) the limit values for chemical composition, thermal- and radiation resistance, chemical and mechanical stability shall be considered;
 - b) the chemical and physical form of the waste and its packaging shall collectively be developed in a way that reduces the possibility of leakage of radioactive isotopes to a minimum;
 - c) such waste form and packaging shall be shaped, which resists radiation, thermal, and chemical effects;
 - d) the waste-package shall show appropriate mechanical stability to be able to resist the effects occurring due to movements;
 - e) at acceptance of waste packages transported for disposal to the storage facility, the isotope composition, the radioisotope content – including fissile material content as well – shall be known to such a detail that the compliance with requirements determined in the operating license of the storage facility can be demonstrated.
- (3) The compliance with requirements for standard waste-form and for standard packaging acceptance and disposal shall be demonstrated by a test series approved by the RD.
- (4) During waste management such waste-form and packaging shall be developed that meets the waste acceptance requirement system approved for waste recipient. The requirements shall be in harmony with the licensed conditions of waste management, which is wished to be performed by the waste recipient and with requirements of following phases, and with engineering capabilities of the recipient.
- (5) Release to the environment or disposal of radioactive material that is not planned for further utilization shall be performed only in a manner determined by a separate law².
- (6) If the waste is simultaneously radioactive and dangerous waste, the safety requirements relevant for dangerous wastes also shall be considered. In case of wastes containing nuclear materials as well, the prescriptions concerning management of nuclear materials also shall be met.

Section 6

- (1) The interim storage or final disposal facility of wastes is qualified as radiation hazardous working place, specific radiohygiene and radiation protection prescriptions determined in a separate law³ are related to the activities performed there.
- (2) The natural person and the economic organization (Paragraph c) of Section 685 of the Civil Code), at whom radioactive waste is generated, is obliged to elaborate waste management rules (hereinafter referred to as: Rules) that suits the nature and quantity of waste and that constitute an Annex of the Occupational Radiation Protection Rules (hereinafter referred to as: ORPR), which is prepared in accordance with the determinations of a separate law. The Rules are approved by the RD.

² Decree 15/2001 (VI.6.) KöM of Minister of Environment

³ Decree 16/2000 (VI.8.) EüM of Minister of Health

Interim storage of radioactive waste

Section 7

- (1) The interim storage of radioactive waste can be performed only if
 - a) there is no licensed waste management procedure,
 - b) there is no licensed final disposal opportunity,
 - c) the waste falls under the clearance procedure of a separate law⁴, or
 - d) in case of the given waste, interim storage is qualified as the optimal procedure determined by the separate law⁵.
- (2) In the course of interim storage it shall be ensured that the waste does not undergo such change, which would make the future waste management or the final disposal unjustifiably difficult.

Section 8

- (1) During the construction licensing procedure of the interim storage facility, those basic environmental effects shall be evaluated that can affect the facility, or those effects originating from the facility that can affect either the individuals or the environment.
- (2) For the issuance of the construction license, the existence of environment protection, water and building licences determined by a separate law is necessary.
- (3) For the construction license application the pre-construction safety analysis report (PCSAR), the recommendation for waste acceptance requirements and demonstration that the safety related systems, structures and components meet the radiation protection and radiation safety requirements shall be submitted.

Section 9

- (1) Operating license for interim storage facility could be issued only for a determined duration, for 5 years at most, which – in case of meeting the operating conditions – can be extended upon request repeatedly by 5 years at most.
- (2) In the operating license
 - a) the licensed service lifetime,
 - b) the maximal waste quantity and activity that can be stored,
 - c) the storage conditions,
 - d) the certification and reporting obligations related to storage, and
 - e) the method and frequency of supervision and the documentation to be performed by the operatorshall be indicated.
- (3) It is qualified as modification of interim storage and requires a modification license if the works to be performed cause deviation in the operating license, or from the contents of the documentation serving as licensing basis. If the modification entails significant change in the radiation protection or in the radiation safety condition, a new licensing procedure shall be conducted.

⁴ Decree 16/2000 (VI.8.) EüM of Minister of Health

⁵ Decree 16/2000 (VI.8.) EüM of Minister of Health

- (4) A termination license for interim storage facility shall only be issued, if the storage facility is declared to be inactive in accordance with the determination of a separate law⁶. Qualification to inactive is performed by the licensing authority.

Final disposal of radioactive wastes

Section 10

- (1) Only solid or solidified waste shall be put to final disposal.
- (2) The requirements for final disposal and for its safety analysis are contained in Annex 4 and 5.
- (3) The safety analysis report can be partial or full scope.
 - a) A full scope safety analysis report shall be prepared for substantiation of construction, operation and closure license applications, also considering the result of periodic safety reviews.
 - b) A partial safety analysis report shall be prepared for the modification of certain – safety related – components of the facility, or for the modification of the licensed activity, for commencing the regulatory inspection and for finishing the active regulatory inspection.
- (4) The licensee shall summarize the results of safety evaluation in a safety analysis report.

Section 11

- (1) The design and installation conditions to be considered during the construction licensing procedure of the final disposal facility are contained in the Annex 6.
- (2) During the construction licensing procedure of the interim storage facility those basic environmental effects shall be evaluated that can affect the facility, or those effects originating from the facility that can affect either the individuals or the environment.
- (3) For the issuance of the construction license, the existence of the environment protection, water and building licences determined by a separate law is necessary.
- (4) For the construction license application the pre-construction safety analysis report, the recommendation for the waste acceptance requirements and the justification that the safety related systems, structures and components meet the radiation protection and radiation safety requirements shall be submitted.

Section 12

- (1) Operating license for final waste disposal facility could be issued for determined duration, for 10 years at most, which – in case of meeting the operating conditions – can be extended upon request repeatedly for 5 years at most.
- (2) Attached to the operating license application the following shall be submitted:
 - a) that part of the pre-operational safety analysis report (POSAR), which shall be prepared before the beginning of operation,
 - b) the emergency response plan determined by a separate law⁷,

⁶ Decree 16/2000 (VI.8.) EüM of Minister of Health

⁷ Decree 16/2000 (VI.8.) EüM of Minister of Health

- c) the plans for waste acceptance and disposal requirement system,
 - d) the records of successful operating tests, and
 - e) the plans for technological instructions.
- (3) In the operating license the following shall be indicated
- a) the licensed lifetime of the final disposal facility,
 - b) the maximal waste quantity and activity that can be disposed in the facility,
 - c) the storage conditions, method and frequency of supervision to be performed by the operator,
 - d) the frequency and method of periodical review for the disposal system considered in the safety analysis, and the safety analysis necessary for performing review, and
 - e) the reporting and recording obligations.
- (4) In the course of operation of the final waste disposal facility the acceptance, management and supervision of the radioactive waste and the safe operation of the facility shall be ensured.
- (5) The operator shall maintain a comprehensive, integrated management system that covers quality assurance and quality control and extends over the whole radioactive waste management process.
- (6) The operator shall maintain a register of radioactive wastes disposed in the facility that also complies with the requirements determined by the separate law⁸. The record shall contain:
- a) all the waste within the site of the facility and the quantity of already stored waste,
 - b) the origin of the waste,
 - c) the place, time and method of disposal,
 - d) the chemical and physical conditions of the waste, and
 - e) the data regarding radioactive isotopes contained in the waste.

Section 12/A

- (1) If the construction or put in operation is realized in more stages, then the licensee can initiate the modification of the construction or operation license if the expertise included in the documentation technically substantiating the modification justifies that the most suitable solution is the multi-stage realization. Licensing of multi-stage realization shall not impair any other licensing conditions.
- (2) The applicant shall attach the safety assessment and safety analyses report developed with regard to domestic and international recommendations to the modification application described in Subsection (1).

Section 13

- (1) In the license application for modifying the final waste disposal facility, the necessity of modification or change shall be demonstrated.
- (2) Should the modification affect the safety of the disposal facility, the supplementation of the valid final safety analysis report or the elaboration of a new final safety analysis report shall be carried out.

⁸ Decree 25/1997 (VI.8.) IKIM of Minister of Industry, Transportation and Tourism

Section 14

- (1) For the closure license application of the final waste disposal facility, a closure plan (including the decontamination plan for the site of the disposal facility), the safety analysis report and a plan for changeover to active regulatory inspection shall be submitted.
- (2) The closure plan of the disposal facility shall ensure that during the active regulatory inspection the maintenance and supervision demands are minimal.
- (3) During the closure phase care shall be taken of the demolition or of other utilization possibilities of the buildings serving for the acceptance, qualification, treatment, packaging and for the on-site interim storage of the wastes, and of the decontamination of the site from industrial and radioactive wastes and of the environment-friendly recultivation of the site according to the rehabilitation plans of the landscape.
- (4) The handing over of the closed facility and site to regulatory inspection shall be performed only with a licensed activity plan and with its approved detailed substantiating safety analysis report.
- (5) Following the closure, a separate license shall be obtained for the changeover to active regulatory inspection, and after its completion another license shall be obtained for the commencement of passive regulatory inspection.
- (6) For the issuance of the active regulatory inspection license, a safety analysis report considering the whole operation (waste quantity, modifications) shall be prepared. The license shall contain the active inspection requirements and the length of the inspection period.
- (7) The active regulatory inspection period lasts at least 50 years, the extension of which can be decided by the authority based on the results of the periodic safety reviews.
- (8) The task of the active regulatory inspection period is the control and monitoring of the environmental conditions and processes and of the measurable concentration of radioactive isotopes in the natural elements.
- (9) In the case of surface storage facilities, the maintenance of the manageable components of the disposal system and the limitation for the utilization of the site for other purposes could be taken into account.
- (10) If at any period of the active regulatory inspection an unplanned release of radioactive materials to the environment or its possibility is observed, in justified case the regulator orders for action to restore or improve environmental safety.
- (11) In the license relating to the passive regulatory inspection, the length of the inspection period and the necessary requirements shall be prescribed.
- (12) The RD regulates the application of the passive regulatory inspection tools in the license relating to the regulatory inspection, and determines the period for which this inspection shall be maintained.
- (13) The design of the storage facility (including the geographical co-ordinates of the site) and records of the stored waste shall not be discarded.

Reports

Section 15

- (1) During the operation the licensee of the interim waste storage facility and the final waste disposal facility shall annually prepare a report on the operation of the facility. The draft of the report shall be submitted for approval to the RD until November 30 of the year preceding the subject year. The report compiled in accordance with the approved draft shall be issued to the RD until February 15 of the year following the subject year, and to the Hungarian Atomic Energy Authority for information.
- (2) The licensee shall immediately report the safety-related modifications and deviations to the licensing authority. The authority shall initiate actions if necessary.
- (3) The licensee of the interim storage and the final disposal facility is obliged to immediately report to the RD the events that are classified as abnormal according to the ORPR.

Regulatory inspection

Section 16

- (1) The RD performs the radiohygiene inspection of the interim storage and the final waste disposal facility. The inspection covers the integrated management system of the operator that also incorporates quality assurance.
- (2) The RD sends the records of the inspection and the decision on the ordered actions to the NOCMO.
- (3) The radiohygiene inspection of the interim storage and the final disposal facility shall be performed as necessary but at least once every half-year.

Concentration, accumulation of the natural radioactive isotopes in the co-product

Section 17

- (1) The performer of the activity shall report to the RD if it performs any industrial activity listed in Annex 1.
- (2) Besides the licenses according to the separate laws a radiohygiene license⁹ is also necessary for management, disposal and reutilization of the co-products of the activities in Annex 1. The RD issues radiohygiene license for the performer of the industrial activity.

Section 18

- (1) The operator shall survey the radiation protection significant features of the co-products disposed in the facility installed either in the environment or on its operation site, and shall assess – with the co-operation of the institute holding appropriate expert background – the radiation exposure originating from them.

⁹ Decree 16/2000 (VI.8.) EÜM of Minister of Health

- (2) The operator during the construction of the facility meant for disposal (disposal facility) of co-products shall perform an analysis describing the radiation exposure originating from the facility, and submit its results attached to the radiohygiene license application.
- (3) Based on the analysis, the authority determines in the license the quantity of the co-products qualified as waste that can be disposed in the facility, and the closure time of the facility.
- (4) If there is no law addressing the reutilization of the co-products, the user of the co-products shall perform an analysis describing the radiation exposure originating from reutilization, and shall submit its results attached to the radiohygiene license application.

Section 19

- (1) At the termination of the co-product disposal activity or at the closure of the disposal facility the operator shall perform an analysis and attach a landscape rehabilitation plan as a part of the environment restoration programme.
- (2) In the analysis it shall be demonstrated that during the period determined by the authority, the expected radiation exposure does not exceed the originally licensed value.
- (3) If after the termination the expected radiation exposure exceeded the licensed level, the RD should limit the reutilization that follows the recultivation of the area. The RD, for the sake of registration informs the authority¹⁰ invested with the territorial jurisdiction.

Final clauses

Section 20

- (1) This decree will come into effect on the 90th day subsequent to its promulgation.
- (2) The licensing procedures under conduction at the date on which this decree comes into effect shall be processed according to the prescriptions effective at the time of submittal of the application. The validity of the licenses issued earlier is not affected by this decree. Regarding the existing and not yet recultivated co-products the prescriptions of subsection (1) of section 18, and subsection (1) of section 19 shall be applied from January 1, 2005.
- (3) This decree regarding its sections 17-19, in the domain of the European Agreement, signed on December 16, 1991 in Brussels on the establishment of the association among the Republic of Hungary and the European Commissions and their member states, and in harmony with section 3 of its promulgating Act I in 1994, contain reconcilable regulation in connection with subsection (1) and subsection (2) paragraphs a), b) and c) of Section 40 and with Section 41 of the 96/29/EURATOM guideline of the Council of the European Union on the establishment of fundamental safety prescriptions ensuring the safety of employees and the population against dangers originating from ionizing radiation during industrial activities in connection with the concentrating of radioactive materials existing in nature.
- (4) This decree is meant to comply with Paragraph (4) of Article 7 of Council Directive 2011/70/EURATOM of 19 July 2011 establishing a Community framework for the responsible and safe management of spent fuel and radioactive waste.

¹⁰ Decree 47/1997 (VIII.26.) BM of Minister of Interior

(5)-(8) (repealed).

Annex 1 to Decree 47/2003. (VIII. 8.) ESZCSM

Activities concentrating and accumulating natural radioisotopes

The following industrial activities could concentrate or accumulate radioisotopes appearing in the nature in their co-products to a level significantly extending the exemption level:

1. Bauxite mining, -processing
2. Zircon-sand utilization, ceramic production
3. Metal ore mining, ore metallurgy utilization
4. Phosphate rock processing, fertilizer production
5. Utilization of geothermic energy
6. Oil and natural gas exploitation (including the research drilling as well)
7. Rare-earth metal mining, -processing
8. Coal mining, coal burning power plants
9. Uranium ore mining, -processing

Annex 2 to Decree 47/2003. (VIII. 8.) ESZCSM

Classification of radioactive wastes

I. General viewpoints of classification of the radioactive wastes:

1. That radioactive waste is qualified as low and intermediate level radioactive waste, in which the heat production during the disposal (and storage) could be neglected.
 - a) That low- and intermediate level radioactive waste is short-lived, in which the half-life of the radionuclides is 30 years or less, and which contains long-lived alpha emitter radionuclides only in limited concentration (this concentration is 4000 Bq/g in the case of one collecting packaging, and 400 Bq/g as average for the whole quantity of waste).
 - b) That low- and intermediate level radioactive waste is long-lived, in which the half-life of the radionuclides and/or the concentration of the alpha emitter radionuclides exceed the limits for short-lived radioactive waste.
2. That radioactive waste is high-level waste, the heat production of which shall be considered during design and operation of storage and disposal.
3. Within the above classification the authority can prescribe more detailed classification for the low, intermediate and high level radioactive wastes.

II. Classification viewpoints for low and intermediate level radioactive wastes:

1. The classification of radioactive waste into low and intermediate level classes shall be performed based on activity-concentration and exemption activity-concentration (EAC) of the radioisotope involved by it (Table 1).

Table 1

Radioactive waste class	Activity concentration (Bq/g)
Low level	1 EAC – 10 ³ EAC
Intermediate level	> 10 ³ EAC

2. If the radioactive waste contains more types of radioisotopes, then the classification shall be performed accordingly as follows (Table 2):

Table 2

Radioactive waste class	Activity concentration ratio
Low level	$\sum_i \frac{AC_i}{EAC_i} \leq 10^3$
Intermediate level	$\sum_i \frac{AC_i}{EAC_i} > 10^3$

where AC_i is the activity-concentration of the i^{th} radioisotope existing in the radioactive waste, while the EAC_i is the exemption activity-concentration of the i^{th} radioisotopes.

Annex 3 to Decree 47/2003. (VIII. 8.) ESZCSM

[repealed]

Annex 4 to Decree 47/2003. (VIII. 8.) ESZCSM

The requirements for final disposal

1. The classification described in Annex 2 shall be applied to radioactive wastes that are intended to be stored, unprocessed, pre-treated and treated. At the certain treatment steps effort shall be made to ensure that the classification according to classification viewpoints is always performed also to the originated (produced) newer waste types.
2. The treatment and final disposal of long-lived low and intermediate and/or high level radioactive wastes are performed according to particular prescriptions.
3. The goal of final disposal of waste is to isolate the radioactive isotopes – that mean potential danger to the mankind and the environment – contained in the waste from the biosphere, hereby to protect the present and future generations and the environment.
4. The safety of the final disposal of the waste shall be evaluated based on the personal dose or personal risk, and the number of affected persons.
5. The safety of the final disposal shall be ensured by a disposal system consisting of the waste form and packaging, the engineering barriers of the facility, the geological and hydro-geological environment, and by intentional human activity in connection with operation and inspection – with the necessary intervention.

6. With the appropriate combination of the components of the waste disposal system, it shall be ensured that a failure or gradual degradation of an element or a component cannot affect the isolation ability of the system as a whole during the lifetime of the waste disposal system.
7. The waste form, packaging and engineering barriers that ensure an appropriate level of isolation are qualified as safety significant components or systems.
8. The design basis shall be determined during the installation or modification licensing of the facility.
9. At the determination of the initiating events in the risk analysis, the events and event-combinations featured by less than 10^{-7} event/year probability could be ignored.
10. In case of conditions postulating the expected behaviour of the disposal system, after closure, the radiation exposure of the individuals of the control group of the population due to effects of the disposed waste shall not exceed the effective dose of 100 μ Sv/year.
11. Such external – human or natural originating – events or event-combinations affecting the disposal system during its lifetime, which are beyond the optimized design basis, shall be evaluated with the application of the risk criteria. As a result of these, the resultant risk of events entailing overexposure of any individual of the population shall not exceed the value of 10^{-5} event/year.

Annex 5 to Decree 47/2003. (VIII. 8.) ESZCSM

Safety evaluation of final disposal

1. The fulfilment of the safety criteria and the behaviour of barriers of the waste disposal system and their appropriateness shall be continuously evaluated and qualified during lifetime of the facility.
2. During safety evaluation, based on the available data about elements of the disposal system (requirements, specifications, instrumental inspection) the following shall be assessed and documented:
 - a) the interactions between the elements and those possible processes which could lead to increase of dispersion probability of radioactive isotopes,
 - b) the dispersion methods and pathways of the radioactive isotopes emerging from the disposal facility.
3. The fulfilment of the safety requirements shall be assessed for such cases – characterizing the disposal system and its behaviour in time – basing on conservative assumptions, which consider the safety significant anticipated events and interactions that have safety significance during the whole lifetime.
4. During the safety evaluation, the uncertainty of the used data and applied assumptions, and their effect on the compliancy of the safety requirements also shall be evaluated.

5. As a part of safety evaluation, the total maximum disposable value of waste quantity and activity – by considering the half-life, the mobility of radioisotopes and other factors – shall be determined, also for certain isotope-groups separately.
6. It shall be demonstrated that the possibility of accumulation of fissile materials leading to nuclear chain reaction can be precluded.

Annex 6 to Decree 47/2003. (VIII. 8.) ESZCSM

Installation and design aspects of final disposal facility

1.
 - a) During the design of final disposal facility the enforcement of requirements concerning the operating and closed after operation disposal facility shall be provided.
 - b) The final disposal facility of radioactive wastes shall be designed – considering the natural characteristics of the site, the level of treatment of the waste, the packaging and the engineering barriers – in a way that ensures the appropriate radiation protection of the population living in its surrounding even in the case of unusual events. The fulfilment of safety requirements shall be demonstrated in safety analysis reports.
 - c) On the site the opportunity of treating and conditioning of wastes with a capacity that is in accordance with the expected quantity of radioactive wastes generated during these activities and by accepting damaged or later damaging – that do not meet the acceptance and disposal requirements – waste packages shall be ensured.
 - d) For ensuring the appropriate level of isolation of the radioactive waste, engineering barriers shall be designed into the disposal system in order that the complex system established as a combination of individual elements could jointly ensure the isolation and confinement at the necessary level and for the necessary duration. The abiding ability of the system and its components shall be specified in the licensing plans.
2. The technology of the waste disposal shall be designed in such a way that the waste remains retrievable during the operating time, if the retrieving is justified by later operating experience, or it is requested by a regulatory procedure.
3. During design of the final disposal facility, the prescriptions determined in separate laws regarding the safety zone and – in the case of wastes simultaneously radioactive and dangerous wastes – the management and storage of dangerous materials shall be considered.
4.
 - a) The licensing plans shall include the plans for security, entrance and personal registering systems of the facility. The site shall be surrounded by a fence of appropriate height and shall be equipped with technical warning systems as determined in a separate law¹¹.
 - b) The facility shall be equipped with safety equipment (i.e. explosion and fire warning, alarming, extinguisher equipment).

¹¹ Decree 47/1997 (VIII.26.) BM of Minister of Interior

- c) The bordering and dividing to zones of the waste disposal area shall be performed in compliance with the concerning prescriptions.
- 5.
- a) The selection of safety significant systems, equipment and components shall be performed and approved.
 - b) During the design, basing on the guidelines of the licensing authority, the radiation and epidemic base-level survey of the environment shall be performed, which serves as a relative basis for the evaluation of the results drawn during the operation and regulatory inspection of the facility.
 - c) Measuring programme for controlling the radiation conditions of the site and for monitoring the environment shall be elaborated, which are approved by the inspecting authority. Such monitoring-, controlling- and warning system shall be designed and installed during the construction, which is able to provide data about the radiation and contamination conditions of the facility and its environment during operation.
 - d) The licensing plans shall contain recommendation for the scope and frequency of environmental monitoring subsequent to the closure of the disposal facility.
6. During design of the final disposal facility the opportunity shall be ensured for monitoring whether the waste packages meet the acceptance requirements, and in addition the technical conditions necessary for performing the registering and the archiving shall be ensured.