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Government Decree 190/2011. (IX. 19.) Korm.

on physical protection requirements for various applications of atomic energy and the corresponding system of licensing, reporting and inspection

The Government, based on the general authorization provided in Paragraphs q) and r) of Section 67 of Act CXVI of 1996 on Atomic Energy, based on the authorization provided in Subsection (1) b) of Section 174/A of Act CXL of 2004 on the general rules of administrative proceedings and services in relation to Section 43 and Annex 6, and Section 44 and Section 45 and Annex 7 of this decree, in its competence determined in Subsection (1) b) of Section 35 of the Constitutes orders as follows:

CHAPTER I

GENERAL PROVISIONS

1. Scope

Section 1

(1) The decree applies to:
a) holder of radioactive source;
b) holder of nuclear material;
c) holder of radioactive waste;
d) licensee of nuclear facility;
e) licensee of temporary radioactive storage facility and final repository of radioactive waste (hereinafter referred to together as: interim store and final repository of radioactive waste);
f) in the case of the planned interim store and final repository of radioactive waste, persons that have completed all research phases of the geological research programme as per the provisions of the government decree on the geological and mining requirements for the design and installation of the interim store and final repository of radioactive waste, and possesses the regulatory decision approving geological research report; and *g)* holder of fix and mobile equipment that generates ionizing radiation but does not contain radioactive material.
(2) The provisions of the decree shall apply in relation to
a) radioactive source and nuclear material used, stored or transported;
b) radioactive waste processed, stored or transported;
c) system, structures or component significant to radiological consequences;
d) planned and operating nuclear installation;
e) planned and operating interim radioactive waste store or final radioactive waste repository; and
f) fix or mobile equipment that generates ionizing radiation, but does not contain radioactive material.
(3) In relation to transport of nuclear material, radioactive source and radioactive waste the scope of the decree covers each transport mode, with the stipulation that in relation to air, sea and inland waterway transport the Sections 1 through 5, 13 through 30 and in relation to air transport Sections 45 through 69, in relation to sea and inland waterway transport Sections 70 through 73of Annex 3 shall not apply.

(4) The decree shall not apply to:

a)

radioactive materials that do not belong under the effect of the government decree on the protection against ionizing radiation and the corresponding licensing, reporting (notification) and inspection system as well as to equipment that generate ionizing radiation but do not contain radioactive material;

b) radioactive substances introduced or implanted in humans or in live animals for diagnostic or therapeutic purposes, and radioactive substances within the body or on the body of persons, which have been ingested or contaminated accidentally or intentionally, and those persons that are being transported for medical treatment for this reason, and

c) radioactive sources held by the Hungarian Defense Forces.

2. Definitions

Section 2

(1) In the scope of this decree:

1. *common tools:* simple, small hand tools that can be hidden under clothes, such as screw driver, pliers, crowbar, hand-saw, hammer, axe, chisel, cordless drill, saw, grinder;
2. *internal response forces:* local guards, armed security guards;
3. *insider:* individual with authorized access to the given facility according to the access control rules determined in the physical protection plan, who could perform unauthorized removal or sabotage or could facilitate an external adversary to do so;
4. *irradiated nuclear material:* such nuclear material which was irradiated in the reactor and generates a dose rate higher than 1 Gy/h in a distance of 1 m;

4a. diversity: the application of those systems or components that fulfil the same function, but in this respect differ in an important parameter, in particular in operating principle, design, layout, manufacturer, thereby reducing the likelihood of a common cause or common mode failure;

5. *on-call security service:* organization supporting the local guards after receipt of alert from the local guards or detection equipment and arrival to the scene;
6. *single failure criteria:* a requirement applied to a function such that the function must be fulfilled by redundant system components and the function can still be fulfilled even if a single failure of one of the redundant components occurs;
7. *response forces:* internal, external response forces;
8. *elevated level of physical protection:* elevated level of physical protection functions, which when ordered shall be ensured by the user of atomic energy as specified in the physical protection plan;
9. *armed security guards:* security organization empowered with the rights laid down in law, fulfilling guarding tasks, holding *automatic* service weapons and other coercive equipment;
10. *denial:* successful set up of forces with due equipment, in due number and of due capability at the appropriate location, which forces the adversary to stop;
11. *equipment available on the scene:* personal tool of an occasional adversary, such as jack-knife, and other tools located in the vicinity of the location, such as rock, piece of metal, piece of wood, wedge;

12. *local guards:* organization performing specific site patrol, watch, detection tasks, escort of persons and transports, supervision of access control system, and performing the first phase of the response;

12a. portable device: a holder or container specifically designed to be easily moved by hand to allowing the sealed radioactive source contained within to be used in different places;

13. *capabilities:* holding and application of equipment and weapons, professional and tactical skills, physical condition;

14. *obligant:* licensee of a nuclear installation, interim radioactive waste storage or final radioactive waste repository, holder of a radioactive source, holder of radioactive waste and holder of nuclear material, and in the case of a planned interim store and final repository of radioactive waste those that have completed all research phases of the geological research programme as per the provisions of the government decree on the geological and mining requirements for the design and installation of the temporary store and final repository of radioactive waste, and possesses the regulatory decision approving geological research report;

15. *external response forces:* police, on-call security service;

16. *unirradiated nuclear material:* such nuclear material, which was not irradiated in reactor, or it was irradiated, but the a dose rate generated is or less than 1 Gy/h at a distance of 1 m without shielding;

17. *holder of nuclear material:* who use, store or transport nuclear material;

17a. programmable system: a functional device or structure capable of performing computing, communication, automation, monitoring and control functions, including:

a) control engineering systems related to the facility's technology

b) physical protection systems;

c) safeguards systems,

d) radioactive material registering systems, and

e) those nuclear safety, physical protection, safeguards and radioactive material register systems not directly connected to the technology of the facility, the data or information stored and handled therein are under the responsibility of the licensee; 18. *holder of radioactive waste:* who process, store or transport radioactive waste;

19. *radioactive source:* sealed or unsealed radiation source containing radioactive material;

20. *holder of radioactive source:* who use, store or transport radioactive source;

21. *neutralization:* successful deter of the adversary before reaching the target, or prevention of the commission of the act by other means;

22. *special equipment*: large hand tools, such as ladder, bolt-clipper, power cutter and large power electric tools, such as cutter, borer, sawing machine, angle grinder;

22a. validation: checking that the system, system component, service, method, computing device, computer program meets the functional, performance and interface requirements under the predefined and written conditions;

22b. verification: checking whether the system, component, service, method, computing device, computer program, products of each phase of the development and manufacturing process satisfies all the predefined requirements of the previous phase;

23. *awareness training:* information provided to the users of atomic energy and the public, the purpose of which is to understand the goals of nuclear security and physical protection, and provision of information about the activities meant to meet these goals;

24. *video surveillance system:* such appliance that has minimum image capture, transmitting and display capability, which is applicable to survey a defined area.

(2) In relation to the concepts not defined in Section (1) the definitions of Section 2 of the Act CXVI of 1996 on Atomic Energy (hereinafter referred to as: Atv.) shall apply.

CHAPTER II

ASSESSMENT OF NATIONAL THREAT, DEFINITION OF DESIGN BASIS THREATS

3. Design basis threat

Section 3

(1) The Hungarian Atomic Energy Authority (hereinafter referred to as: HAEA), in relation to the national threats and design basis threats shall:

a) asses and determine and, in addition, regularly and if determined so based on such information or event revise without undue delay the threats of use of atomic energy within the territory of Hungary based on the coordination with the organizations specified in Subsection (2);

b) based on the assessment and review determined under Paragraph a) determine the design basis threat for the planned nuclear facility and for the planned interim store and final repository of radioactive waste;

d) based on the assessment and review determined under Paragraph a) determine, and in case of the change of national threat for nuclear material, radioactive source, radioactive waste, interim store and final repository of radioactive wastes and nuclear facilities and on the scientific and technical results related to physical protection, revise the design basis threats for nuclear material, radioactive source, radioactive waste, interim store and final repository of radioactive wastes and nuclear facilities;

d) determine

da) the necessity of introduction of elevated level physical protection if the threat level increases, and

db) the necessity of termination of elevated level physical protection if the conditions justifying the elevated level has terminated; and

e) provide proposal on the state instruments to manage threats beyond design basis threat (2) after coordination with the organizations specified in Section (2).

(2) The HAEA, in relation to the issues specified in paragraph b) through d) of Section (1), after coordination with the organizations listed below, shall make decision binding to act:

a) Hungarian National Police Headquarters;

b) Military National Security Service;

c) Constitution Protection Office;

d) Counterterrorist Centre; and

e) National Security Authority.

(3) The HAEA shall send the decision according to Section (2) to the obligant and those organizations that participated in the coordination.

(4) The organization specified in Section (2) may also initiate the introduction and termination of elevated level physical protection at HAEA.

(5) The duration of the HAEA's proceeding for the initial determination of the design basis threat is six months. The head of the HAEA, if justified, may extend once the administration deadline with 90 days at maximum. The HAEA shall notify the client of the extension of the administration deadline, and those who were notified of the commencement of the procedure.

CHAPTER III

CATEGORIZATION, GOALS OF AND BASIC REQUIREMENTS FOR PHYSICAL PROTECTION

4. Categorization of nuclear material, radioactive source and radioactive waste

Section 4

(1) Irradiated and unirradiated nuclear materials shall be categorized from the aspect of protection against unauthorized removal, and the unirradiated nuclear materials shall be categorized from the aspect of protection against sabotage based on the fissile material content according to Table 1 of Annex 1.

(2) Irradiated nuclear materials shall be categorized from the aspect of protection against sabotage based on Cs-137 content according to Table 2 of Annex 1, with the stipulation that irrespective of its quantity the irradiated nuclear fuel shall belong to Category 1 of Table 2 of Annex 1.

(3) In the course of categorization from the aspect of unauthorized removal of nuclear material the total amount of nuclear material of the same type used, stored within the same physical protection zone or simultaneously transported shall be taken into account, while the various materials shall be taken into account independently of each other.

(4) The radioactive sources used, stored or transported individually shall be categorized according to their activity and the isotope-specific normalization factor per Table 2 of Annex 1.

(5)

(6) The individually processed, stored or transported radioactive waste shall be categorized based on their activity and the isotope-specific normalization factor related to the specific isotope according to Table 3 of Annex 1.

(7) In the course of categorization of the radioactive sources used or stored within the same physical protection zone or transported together the sum of R values determined by isotopes according to Table 2 of Annex 1 shall be taken into account.

(8) In the course of categorization of radioactive wastes processed or stored within the same physical protection zone or transported together, the value individually licensed by considering the calculated sum of R values determined by isotopes according to Table 3 of Annex 1 and corrected by the factor S shall be taken into account.

5. Goal of physical protection

Section 5

(1) The physical protection system shall provide for protection against:

a) unauthorized removal during use, storage and transport of Category III nuclear materials and Category 2–5 radioactive sources, and during processing, storage and transport of Category 2–3 radioactive waste;

b) unauthorized removal and sabotage during use and storage of Category I and II nuclear materials and Category 1 radioactive sources, and during processing and storage of Category 1 radioactive waste;

c) unauthorized removal during transport of Category I and II nuclear material, Category 1 radioactive source and radioactive waste; and

d) sabotage against systems, structures and components significant to radiological consequences.

(2) The physical protection system shall provide protection against sabotage during the transport of Category I and II nuclear material, Category 1 radioactive source and radioactive waste through the compliance with the legal requirements related to transport safety of such substances.

6. Basic requirements for physical protection system

Section 6

(1) The physical protection system shall provide adequate delay after the detection of unauthorized removal or sabotage and alerting the responding forces to allow for denial and counteraction by the responding forces before the adversary reaches the protected target.

(2) The physical protection system shall be developed such a way to minimize the chance of sabotage committed by an insider and to prevent unauthorized removal by an insider.

(3) It shall be ensured that the physical protection system preserves its effectiveness under every weather condition, in every part of the day and in every phase of use, processing, storage and transport. To this end, during the design and construction of the physical protection system a controlled process shall be established to ensure that only instruments having environmental qualification are used.

(4) The detection and response function of the physical protection system shall comply with the single failure criterion.

(5) The information, being aware of which the adversary can reduce the effectiveness of the physical protection system, shall be qualified and managed according to laws regulating the protection of qualified data.

(6) The physical protection system shall be operated effectively in cooperation with the requirements for and technical solutions of nuclear safety, industrial safety, accountancy and control, radiation protection, management of abnormal situations and nuclear and conventional emergency management of the nuclear facility, interim storage and final repository of radioactive wastes, nuclear materials, radioactive sources and radioactive wastes.

7. Required physical protection levels

Section 7

(1) During the use, storage and transport of nuclear materials, radioactive sources, and processing, storage and transport of radioactive wastes four levels of physical protection shall be developed according to sections (2)–(5) by ensuring:

a) on physical protection level A: prevention of sabotage and unauthorized removal,

b) on physical protection level B: reducing the opportunity of sabotage and unauthorized removal,

c) on physical protection level C: reducing the opportunity of unauthorized removal, and

d) on physical protection level D: application of basic protection measures (i.e. prudent management).

(2) Level A physical protection shall be ensured in the case of use, storage and transport of Category I nuclear material.

(3) Level B physical protection shall be ensured in the case of:

a) use, storage and transport of Category II nuclear material,

b) use, storage and transport Category 1 radioactive source,

c) processing, storage and transport of Category 1 radioactive waste, and

d) transport of Category III nuclear material.

(4) Level C physical protection shall be ensured in the case of:

a) use, storage of Category III nuclear material,

b) use, storage and transport of Category 2 and 3 radioactive source –except for the use of sealed radioactive sources in portable devices outside the testing laboratory and

c) processing, storage and transport of Category 2 and 3 radioactive waste.

(5) Level D physical protection shall be ensured in the case of:

a) use, storage and transport of Category 4–5 radioactive source except for the use of sealed radioactive sources in portable devices outside the testing laboratory,

b) use, storage and transport of non-categorized nuclear materials, and

c) processing, storage and transport of Category 4 radioactive waste.

(6) Concerning systems, structures and components significant to radiological consequences the level of physical protection shall be identical to that of the used or stored nuclear material and radioactive source, or processed, disposed radioactive waste, determined according to Sections (1)–(5).

(7) Concerning the physical protection during processing and transport of the radioactive source that was re-qualified to radioactive waste the requirements of the protection level of the radioactive source shall apply.

CHAPTER IV

FUNCTION OF PHYSICAL PROTECTION SYSTEM AND IMPLEMENTATION OF THE FUNCTIONS

8. Functions of the physical protection system

Section 8

The physical protection shall ensure that the:

a) deterrence,

b) detection,

c) delay, and

d) response

functions cooperate effectively according to the requirement of Annex 2 and 3.

9. Implementation of deterrence

Section 9

(1) Deterrence shall be implemented such a way that it forces the adversary of the unauthorized removal or sabotage to give up the preparation for of execution of the intended act.

(2) Deterrence shall be implemented by the appropriate combination of the following items as specified in Annex 3 and 4:

a) warning signs, notices,
b) sound and light signals,
c) well visible artificial obstacles,
d) awareness training, and
e) accountancy verification.

10. Implementation of detection

Section 10

(1) During detection:
a) activity of adversary shall be detected,
b) validity of detection shall be verified,
c) location of act shall be determined, and
d) response forces shall be alerted.
(2) Detection shall be implemented as specified in Annexes 3 and 4 by due combination of:
a) intrusion and attack detection and signaling system,
b) video surveillance and assessment,
c) access system,
d) detection by persons, and
e) central alarm station.
(3) During the implementation of detection function it shall be provided that:
a) adversary act shall timely be detected with high probability;
b) the time necessary for the alarm to arrive and to evaluate its validity is available;
c) the occurrence of spurious alarms due to not real events is rare; and
d) the detection sensors cannot be evaded.
(4) If visual surveillance system is applied appropriate illumination and detection area (exclusion zone) shall be provided for the security cameras.
(5) The entry authorization shall be checked in such a way that it provides the access of authorized persons, detection and delay of entry and exit of unauthorized persons, and alarm if materials not permitted are carried in or out of the zone.
(6) Appropriate central alarm station shall be established to receive, process, assess and archive information from alarm and surveillance systems or from the internal response forces, and to initiate justified response actions in the case specified in Annex 3. The station shall be hardened to provide secured stay of internal response forces.
(7) Access points located at the zone borders shall be designed to alarm if materials not permitted are carried in or out of the zone in accordance with the given physical protection level.

11. Implementation of delay

Section 11

(1) Delay shall be implemented to impede the adversary in carrying out the act, and thus to provide the time required for the response forces to react.
(2) Delay shall be realized through due combination of the following items as specified in Annex 2 and 3:

a) passive mechanical barriers, structures,
b) active movable mechanical barriers and the respective locks,
c) security stores, sheet metal cabinet, vehicle cabinets, and
d) activated equipment.

12. Carrying out the response

Section 12

(1) Subsequent to the receipt of the alarm the response forces shall prepare themselves, then arrive to the scene, deny and neutralize the adversaries.
(2) During response the denial and neutralization of the adversary of unauthorized removal or sabotage shall be carried out in cooperation with the following organizations as specified in Annex 2 and 3:
a) local guards,
b) armed security guards,
c) police and
d) on-call security service.
(3) The following shall be ensured during the carrying out of the response function:
a) short time required to interact,
b) required number of response forces to carry out the response, and
c) capabilities required for the response forces to respond.

CHAPTER V

FURTHER REQUIREMENTS

13. Materials and facilities to be protected by the armed security guards

Section 13

Nuclear facility, except for that equipped with a nuclear reactor of less than 1 MW thermal power, interim store and final repository of radioactive waste and nuclear material of Category I and II shall be protected by armed security guards.

14. Physical protection zones

Section 14

(1) Following the concept of protection-in-depth, physical protection zone or zones shall be developed within the area established for the physical protection of the nuclear facility, interim store and final repository of radioactive waste, nuclear material, radioactive source and for radioactive waste.
(2) The physical protection zones are as follows:
a) limited access area;
b) protected area;
c) vital area; and
d) inner area.
(3) Protected area shall be designated inside the limited access area; vital area shall be designated inside the protected area; while inner area shall be designated inside vital area.

(4) The physical protection areas shall conform to the physical protection levels determined in Section 7 as specified in paragraphs (5)–(8).

(5) As minimum, level D protection shall be ensured within limited access area. Nuclear material, radioactive source, radioactive waste requiring level D physical protection shall be located within limited access area.

(6) As minimum, level C protection shall be ensured within protected area. Nuclear material, radioactive source, radioactive waste that requires level C physical protection and such systems, structures and components, which are significant to radiological consequences and so require level C protection, shall be located within protected area.

(7) As minimum, level B protection shall be ensured within vital area. Nuclear material, radioactive source, radioactive waste that requires level C physical protection and such systems, structures and components, which are significant from the point of view of radiological consequences and so require level C protection, shall be located within vital area.

(8) Level A protection shall be ensured within inner area. Nuclear material requiring level A physical protection shall be located within inner area.

(9) Movement between two physical protection zones shall be possible only via access points in a controlled manner.

15. Nuclear security culture

Section 15

The obligant shall develop and maintain security culture necessary to ensure effective implementation of the physical protection system within the entire organization and to ensure that each organization, organizational unit and person manages the physical protection related activities with due importance.

16. Insiders

Section 16

(1) The obligant, in compliance with the stipulations of the Act on National Security Services, shall check the trustworthiness of the persons who have knowledge of sensitive information, high-level access rights and authority in relation to the effective operation of the physical protection system.

(2) Vital area and inner area can be accessed only by at least two persons authorized to access and perform the duty.

17. Access control

Section 17

(1) Only such persons shall enter the nuclear facility, interim storage or final repository of radioactive wastes, who hold appropriate authorization to access the facility, and consent to handle his/her personal data as specified in Paragraphs (5)–(7).

(2) The physical protection plan shall contain the access and regress control in the facilities specified in (1).

(3) The authorization card of the persons accessing the facilities specified in (1) to perform duties or tasks shall be applicable to identify the person, to ensure computerized data store and

identification according to the code contained in the card, and in case of nuclear power plants, to comply with the legal requirements on security cards.

(4) Facilities specified in (1) can be accessed only after written permission of the obligant. Visitors shall access the limited access area, the protected area, the vital area and the inner areaonly if escorted by the person designated by the obligant.

(5) The obligant shall register the access authorizations specified in (3) and (4). The register shall record the following data of the persons authorized to access:

a) natural identification data,

b) address,

c) citizenship,

d) identity card or passport number, and

e) in the case of persons specified in (3) the number of public security permission granted by the police.

(6) The obligant shall handle the data of the register during the period of validity of access authorization, and during 10 years after termination of validity to ensure effective maintenance and operation of physical protection system against design basis threat.

(7) The obligant shall deliver the data of the register only if crime or violation of rules is detected or in the case of inquiry by the investigation authority or the offence authority.

18. Planning

Section 18

(1) The obligant shall develop a physical protection plan to describe the structure and operation of the physical protection system according to the specifications of Annex 4.

(2) The obligant, as part of the physical protection plan, shall prepare a contingency plan, which specifies the scope of possible events, including also the events that may cause inappropriate operation of the physical protection system, as well as the procedure of necessary measures and interventions.

(3) The obligant shall prepare for the measures to introduce advanced level physical protection if ordered for according to point d) and da) of paragraph (1) of Section 3.

(4) The obligant shall harmonize the management of nuclear and non-nuclear emergencies with the operation of the physical protection system.

(5) If nuclear emergency occurs due to sabotage or other reason, the physical protection system shall not hinder the implementation of the emergency response plan.

19. Nuclear safety and radiation protection related requirements for physical protection

Section 19

(1) The physical protection system and its components shall be independent of the systems, structures and components important to nuclear safety and radiation protection, in order to ensure that the safety categorized systems, structures and components remain fully functional during the operation or failure of the physical protection system.

(2) In order to comply with the requirement of (1):

a) adverse interaction: it shall be excluded that the failure of the physical protection components cause inoperability of components important to nuclear safety or radiation protection;

b) concerning energy supply, instrumentation and control (regulation, control, measurement and programmable instruments) and computer based tool the connection with components important to nuclear safety shall be minimized; and

c) in the course of commissioning of any component of the physical protection system it shall be demonstrated that the systems, structures and components important to nuclear safety or radiation protection are fully applicable to fulfill their functions with simultaneous operation or failure of physical protection.

(3) The instruments of physical protection shall also be used to ensure that nuclear safety related duties, especially those that require authority license, are fulfilled by only such persons, who are authorized thereto.

(4) Safe operation shall be ensured during the modification of physical protection such a way that:

a) the systems, structures and components important to nuclear safety or radiation protection are fully applicable to fulfil their functions during the implementation of the modification works; and

b) the persons working in nuclear safety or radiation protection related duties can perform their activity without being impeded.

(5) the protective function of the programmable systems shall not affect the functionality of nuclear safety, physical protection, safeguards or the radioactive material registry systems. The protective function of the programmable systems shall

a) have no repercussion on the nuclear safety, physical protection, safeguards or radioactive material registry systems, and

b) rule out the possibility that the operation of the protective function of the programmable system or the failure of the protective function will result in the failure of the functioning of the nuclear safety, physical protection, safeguards functions or radioactive material registry system.

20. Physical protection requirements of the programmable systems

Section 20

(1) Except for the holder of nuclear material, radioactive source or radioactive waste stipulated in Subsection (4) and (5) of Section 7, the obligant shall ensure:

a) the confidentiality, integrity and availability of the managed data and information stored in the programmable systems; and

b) physical protection of the programmable system proportionally to the integrity and availability risks.

(2) Except for the holder of nuclear material, radioactive source or radioactive waste stipulated in (4) and (5) of Section 7, and for the holder of radioactive source as stipulated in row 1 of Table 2 of Annex 1, the obligant, in accordance with Paragraph 3 of Annex 4 shall create a security plan describing the structure and operation of the programmable systems as part of the physical protection plan.

(3) The licensee of the nuclear facility (except for that equipped with a nuclear reactor of less than 1 MW thermal power) shall designate or establish an organizational unit directly under the supervision of the top management of the facility to supervise the physical protection of the programmable systems.

(4) The head of the organizational unit established or designated as per Subsection (3) shall be responsible for the supervision of the physical protection of the programmable systems.

(5) The organizational unit established or designated as per Subsection (3) shall consist of delegates of organizational units involved in the physical protection of programmable systems or the employees of the designated organizational unit.

(6) The licensee of the nuclear facility (except for that equipped with a nuclear reactor of less than 1 MW thermal power) shall act on the basis of Annex 6 during the design, construction and modification of the programmable systems.

21. Training and exercise

Section 21

(1) In order to ensure an effective operation of the physical protection system the obligant shall provide entrance training and at least annual refreshing training in the area of physical protection for the persons holding permanent authorization to access. The physical protection training shall cover the following items:

a) objective of physical protection,

b) roles and responsibilities of the persons holding permanent authorization to access,

c) security culture, and

d) duties of the persons holding permanent authorization to access for the case of unauthorized removal or sabotage.

(2) The obligant shall hold annual physical protection exercise to demonstrate the adequacy of operability of the physical protection functions and capabilities of response forces.

22. Special requirements for employment, training and exercise of armed security guards who render a service in the use of nuclear energy

Section 22

Only that person shall be employed as armed security guard to render a service in the use of atomic energny who, beyond the general employment conditions relevant for armed security guards complies with the following conditions:

a) pass the criteria of physical fitness qualification test determined in Section 23, and

b) has armed security guard post qualification as included in the government decree on the National Qualifications Register or equivalent qualification .

Section 23

Before employment, the armed security guard, beyond the exams prescribed for the armed security guards in the law, shall participate in a physical fitness qualification test and shall repeat the qualification test biannually in front of a committee determined in Section 24.

Section 24

The members of the committee that examines the physical test:

a) representative of the police performing the supervision;

b) security supervisor of the obligant or a person designated by him/her; and

c) commander of armed security guards at the obligant.

Section 25

The obligant shall provide due medical assistance for the physical fitness qualification test and the technical conditions for urgent treatment.

Section 26

(1) The armed security guard can be exempted from participation in the physical fitness qualification test by a preliminary permit granted by the commander of armed security guards at the obligant, if respectable reason is presented or based on medical certificate.

(2) In the case of the situation described in (1) the armed security guard shall participate in the repeated qualification test within 30 days or 30 days within the termination of inability.

Section 27

(1) The armed security guard, by completing the fitness qualification exercises required in Section I of Annex 5, meets the physical applicability requirements. Completion of the 2000 m run is mandatory, 4 additional elements are optionally selected. The physical fitness assessment is valid with the completion of 5 valid exercises. The order of the exercises to be performed is determined by the committee on site.

(2) The mandatory and optional exercises shall be deemed completed if the participant achieves at least one point in each exercise performed.

(3) The armed security guard shall pass the physical fitness qualification test if 80 points of the possible 125 is obtained.

(4) The committee examining the physical fitness qualification test evaluates the result on the scene and informs the armed security guard thereof.

(5) If the armed security guard does not pass the physical fitness qualification test, once he/she may repeat the qualification test within 6 months of the day of the first attempt.

(6) The armed security guard shall declare on the scene if she/he intends to participate in the repeated qualification test determined in Subsection (5).

(7) The armed security guard, who does not achieve appreciable results or does not intend to participate in the repeated qualification test or who fails to pass the original and the repeated qualification test, shall not further employed as armed security guard in the use of nuclear energy.

23. Testing and maintenance

Section 28

(1) The obligant shall maintain the operability of the physical protection system via the development and implementation of an appropriate maintenance programme. The maintenance process shall provide for:

a) Corrective Maintenance to respond to unanticipated failures and to include other maintenance related works, and

b) Planned Preventive Maintenance including planned maintenance actions.

(2) The obligant shall provide for regular testing of operability of detection function, and shall develop a procedure for management of non-compliances revealed during testing.

(3) The obligant shall provide for effective fulfillment of physical protection functions during the modification and maintenance of the physical protection system.

CHAPTER VI

DESIGN OF PHYSICAL PROTECTION SYSTEM

24. Technical design of the physical protection system

Section 29

(1) To design the physical protection system the obligant shall:

a) identify the type, amount and activity of the used, stored or transported nuclear material, radioactive source, or of the processed, stored or transported radioactive waste, as well as the systems and components important from the point of view of radiological consequences;

b) determine the respective categories based on Section 4;

c) determine the minimum level of protection based on Section 7;

d) survey the potential adversary pathways, and the potential tactics of insiders; and

e) meet all the requirements determined in Annex 2 and 3 for each potential intrusion routes in relation to all of the physical protection functions specified in Sections 9–12.

(2) The obligant may apply higher level physical protection solutions compared to the minimum required protection, may meet higher level requirements or may apply different physical protection solutions in addition to that required in Annex 2 and 3. The physical protection solutions pertaining to higher level physical protection, or using more than minimum required additional different solutions can be regarded as part of the elevated level physical protection.

(3) Category II and III sealed radioactive sources used in portable devices may only be used in the simultaneous presence of two persons with mobile communication devices. Deterrence shall be ensured through radiation protection sealing, placement of warning signs, detection by personal observation, and placement of radiation lamps, and in the case of unauthorized removal by alerting the police, and the delay shall be ensured primarily through fixing the device to an object or if not possible to a mobile weight of no less than 30 kg.

(4) Category III and IV sealed radioactive sources used in portable devices may only be used in the simultaneous presence of two persons with mobile communication devices. Deterrence shall be ensured through the placement of warning signs detection by personal observation and in the case of unauthorized removal by alerting the police.

(5) The technical design and installation of the physical protection system providing level A, B or C physical protection shall only be done by a person who has a valid certificate for designing and installing security systems.

Section 30

The obligant shall realize the physical protection of the nuclear facility, except for that equipped with a nuclear reactor of less than 1 MW thermal power, interim storage and final repository of radioactive waste, such a way that ensure the effective protection against the design basis threat prescribed for the specific facility by regulatory decision.

CHAPTER VII

REGULATORY LICENSING AND INSPECTION OF PHYSICAL PROTECTION

25. Proceeding authorities

Section 31

The HAEA shall perform regulatory licensing of construction, operation and modification of the physical protection system of nuclear facility, interim store and final repository of radioactive waste and of nuclear material, radioactive source and radioactive waste.

26. Licensing

Section 32

(1) Regulatory license is required:

a) to construct the physical protection system of nuclear facility, interim store and final repository of radioactive waste, nuclear material, radioactive source and radioactive waste according to the physical protection plan,

b) to extend the license of the physical protection system of nuclear facility, interim store and final repository of radioactive waste, nuclear material, radioactive source and radioactive waste,

c) to transport nuclear material, radioactive source and radioactive waste requiring level A, B or C physical protection,

d) to modify a licensed physical protection system, if the modification needs modification of the physical protection plan.

(1a) The duration of the proceeding for the application of the regulatory license described in (1) a) is

a) six months in the case of nuclear facility, interim store and final repository of radioactive waste;

b) 30 days in the case of the physical protection system of nuclear material, radioactive source and radioactive waste.

The duration of the proceeding, can be extended one time in justified cases, in the case of a nuclear facility, interim store and final repository of radioactive waste by up to 90 days, in the case of the physical protection system of nuclear material, radioactive source and radioactive waste by up to 30 days. The HAEA shall notify the client and all those who have been notified about the initiation of the proceeding about the extension of the duration of the proceeding.

(1b) The duration of the proceeding for the application of the regulatory license described in (1) b) and d) is

a) 90 days in the case of nuclear facility, interim store and final repository of radioactive waste;

b) 30 days in the case of the physical protection system of nuclear material, radioactive source and radioactive waste.

The duration of the proceeding, can be extended one time in justified cases by up to 30 days. The HAEA shall notify the client and all those who have been notified about the initiation of the proceeding about the extension of the duration of the proceeding.

(1c) The duration of the proceeding for the application of the regulatory license described in (1) c) is 30 days, which in justified cases can be extended one time by 30 days. The HAEA shall notify the client and all those who have been notified about the initiation of the proceeding about the extension of the duration of the proceeding.

(2) Application for license according to paragraph (1) a) shall be submitted to the authority at least 1 month before the receipt of the first nuclear material, radioactive waste or radioactive source and 6 month before in case of interim store and final repository of radioactive waste, in the case of planned nuclear facility, the application for license shall be submitted together with the construction license application.

(3) Physical protection plan of nuclear facility, except for that equipped with a nuclear reactor of less than 1 MW thermal power, and used, stored and transported nuclear material, radioactive source, and of processed, stored and transported radioactive waste shall be attached to the license application submitted according to Paragraph (1) *a)–c)*.

(4) In the license application according to Paragraph (1) *d)* the modifications planned in the physical protection plan necessary due to the modification shall be described and it shall be demonstrated that the physical protection system will meet the requirements of this decree after the modification.

(5) If the obligant does not submit the background documentation of application via the client gate, then the documentation shall be submitted in three printed copies and one copy on electronic media in a text editor platform preliminary agreed with HAEA.

(6) The license is valid for 5 years, except for the transport of nuclear material, radioactive source or radioactive waste requiring level A or B physical protection, when the license is only valid for the specific transport.

(6a) The license will expire with the announcement of the termination of the activity contained therein. The obligant shall report the termination of the activity in writing to the HAEA at least 30 days in advance. The HAEA shall acknowledge receipt of the notification in writing within 15 days.

(7) The application for license according to Paragraph (1) *b)* shall be submitted at least 1 month before the expiry of the license and 6 month before the expiry of the license in the case of nuclear facility, interim store and final repository of radioactive waste.

(8) The HAEA shall inform the National Directorate General for Disaster Management, Ministry of the Interior and the National Police Headquarters of the transport route requiring level A or B physical protection.

(9) The HAEA shall involve the police in the licensing of deviation from the requirements specified in Annex 2, 3 and 6 if the requirements of Sections 6–30 are met.

Section 32/A

(1) In the case of a planned nuclear facility and interim store and final repository of radioactive waste, the obligant is obligated to request the HAEA to determine the design basis threat as stipulated in (1) b) of Section 3.

(2) The application described in (1) shall include

a) those specified in (1) a) of Section 29; and the
b) suitability of the site from a physical protection aspect.

Section 32/B

(1) Recommendations on the method of meeting the physical protection system requirements are contained in the guidelines provided by the HAEA. The guidelines are published on the website of the HAEA.

(2) If the obligant submits the application for license according to (1) a) through c) of Section 32, and if the obligant performs the physical protection activities according to the guidelines, the HAEA and the police shall consider the chosen method to be suitable for verifying the fulfilment of the requirements of the physical protection system and do not examine the adequacy of the method used.

(3) When using methods other than those described in the guidelines, the HAEA and the police shall assess the correctness, appropriateness and completeness of the method used.

27. Data supply, reporting system

Section 33

(1) Promptly, but not later than 2 hours after the detection the obligant shall report to the HAEA and the police any behavior or activity aiming at sabotage or unauthorized removal related to nuclear security or physical protection system.

(2) The obligant shall examine the circumstances of the event reported according to (1) and the operation of the physical protection system, and shall submit a report to the HAEA and the police about the results of the examination and the corrective actions not later than 30 days after the event.

(3) The obligant of nuclear facility, interim store and final repository of radioactive waste shall annually evaluate the performance of organizational and technical subsystems of the physical protection for the preceding year. The evaluation shall be submitted to the HAEA and the police every year until January 31.

(4) The evaluation shall contain:

a) description of management and organizational changes;
b) description of modifications of the technical subsystem;
c) evaluation of security culture;
d) evaluation of physical protection training and exercises implemented;
e) summary description of reportable events;
f) status of corrective actions decided; and
g) analysis of such initial events, which may lead to decrease of level of nuclear security or radiation protection or to occurrence of extraordinary event as a result of reasonably assumed intentional human activity.

(5) In order to effectively inspect the operability and effectiveness of the physical protection system, the HAEA and the police can require further data supply from the obligant.

28. Inspection

Section 34

(1) The HAEA and the police are equally authorized to inspect the information obtained from data supply, and the actual and effective implementation of the physical protection requirements and physical protection plan based on the data supply and reports.

(2) The HAEA and the police are equally authorized to inspect on the scene the compliance with the legal requirements and regulatory decisions related to the physical protection system.

(3) The HAEA and the police shall coordinate the programme of planned inspections and shall send the inspection programme, the notes and records officially taken to each other.

(4) The HAEA and the police can perform on-scene inspection with or without preliminary information to the obligant. The preliminary information shall contain the date, time, location and subject of the inspection, and the name and contact details of the inspector.

(4a) The HAEA and the police shall notify each other of the date and purpose of the inspection not included in the inspection programme at least on the working day preceding the inspection or if that is not possible prior to the inspection at the latest. For the sending of the notes and records, the provisions of (3) shall apply.

(5) The inspection activity, to the extent possible, shall not interfere with the operation of nuclear facility, interim store and final repository of radioactive waste and the use, store and transport of nuclear material, radioactive source and process, store and transport of radioactive waste.

(6) The records of the inspection shall be prepared in three copies, which shall be signed by the authority performing the inspection and the representative of the obligant.

CHAPTER VIII

SEPARATE RULES FOR PHYSICAL PROTECTION OF FIX AND MOBILE EQUIPMENT THAT GENERATE IONIZING RADIATION BUT DO NOT CONTAIN RADIOACTIVE MATERIAL AND FOR TRANSPORT OF NUCLEAR MATERIAL, RADIOACTIVE SOURCE AND RADIOACTIVE WASTE REQUIRING LEVEL D PHYSICAL PROTECTION

Section 35

(1) In relation to fix and mobile equipment that generate ionizing radiation but does not contain radioactive material the requirements of this Section shall be applied instead of the requirements of Sections 4–34.

(2) The holder, in order to provide physical protection of fix and mobile equipment that generate ionizing radiation but does not contain radioactive material, shall:

a) display the sign of radiation danger on each door of the room encompassing the equipment, with the exception of package checking equipment where it is sufficient to display the sign on the equipment;

b) furnish the room encompassing the equipment with lockable doors, and shall keep the doors locked, when the room is not in use;

c) determine the persons who are authorized to access the room and shall check the authorization at access;

d) ensure that when the equipment or room is not in use, store the keys necessary for the operation of the equipment and the keys of the room encompassing the equipment in a safe or held by the person authorized to enter, when the equipment is not in use; and

e) designate the persons authorized to obtain the keys, and shall check the authorization when the keys are taken.

(3) Regarding mobile equipment that generate ionizing radiation but does not contain radioactive material the holder shall:

a) display the sign of radiation danger on the equipment;

b) furnish the room of the equipment used for out of operation store or for when the equipment is not being transported to be used with lockable doors;

c) determine the persons who are authorized to access the storage room and shall check the authorization at access;

d) ensure that when the room is not in use, the keys are stored in a safe or held by the person authorized to enter; and

e) keep up to date registry, which contains the date and time of carry away and bring back of the equipment and the name of the person using the equipment.

(4) Requirements of Section 34 shall apply to the inspection of physical protection of fix and mobile equipment that generate ionizing radiation but does not contain radioactive material.

(5) The holder of the fix and mobile equipment that generate ionizing radiation but does not contain radioactive material in accordance with the government decree on the protection against ionizing radiation and the corresponding licensing, reporting (notification) and inspection system shall describe in the license application for the use of equipment generating ionizing radiation but not containing radioactive material how the requirements of (2) and (3) are complied with.

(6)

(7) Transport of nuclear material, radioactive source and radioactive waste requiring level D physical protection is subject to registration.

(8) Registration shall be done on the form provided by the HAEA prior to the first delivery within the territory of Hungary. The registration shall be sent to the address published on the website of the HAEA. During the registration process, prior to the first delivery within the territory of Hungary, the holder of a permit for carriage or transportation under the agreement regulating the international carriage of dangerous goods for the relevant modes of transport, shall declare that the physical protection of the transport complies with the level D physical protection requirements for the specific mode of transport as stipulated in Annex 3.

(9) Registration of the level D physical protection registration is valid for up to five years when the conditions remain unchanged.

CHAPTER IX

CLOSING PROVISIONS

Section 36

The decree shall enter into force on the 15th day after promulgation.

Section 37

(1) Within 30 days after entering into force of this decree the HAEA shall establish in a resolution the facility specific design basis threat for nuclear facility, except for that equipped with a nuclear reactor of less than 1 MW thermal power, interim store and final repository of radioactive waste.

(2) Except for the facility in (3) the obligant shall submit the application according to Paragraph (1) a) Section 32 to the HAEA not later than 6 month after the entering into force of this decree.

(3) In the case of nuclear facility, except for that equipped with a nuclear reactor of less than 1 MW thermal power, interim store and final repository of radioactive waste the obligant shall submit the application according to Subsection (1) a) of Section 32 to the HAEA not later than 6 month after the information of the resolution according to Paragraph (1).

(4) The obligant shall describe in the application that which of the provisions of this decree are not or not fully complied with in relation to its physical protection system, and shall propose a date when the provisions not or not fully complied with will be complied with.

(5) The HAEA shall decide in a resolution on the licensing of the physical protection system, on the exemptions and permitted duration of non-compliance in relation to the provisions which are not or not fully complied with. The HAEA, in the course of consideration of the exemption and determination of the duration of non-compliance, shall take into account the decree of deviation, the scope, costs and required time of measures necessary to reach the compliance.

(6) The holder of fix and mobile equipment that generate ionizing radiation but does not contain radioactive material, who holds operation license at the time of entering into force of this decree, shall perform its reporting obligation according to Section (5) of Section 35 not later than within 60 days after the entering into force of this decree.

Section 37/A

a) Subsection (3) of Section 1 of the decree established by Section 13,
b) Subsection (1) 12a of Section 2 of the decree established by Section 14,
c) Subsection (2) of Section 6 of the decree established by Section 15,
d) Subsection (5) and (7) of Section 10 of the decree established by Section 16,
e) Subsection (3) and (4) of Section 29 of the decree established by Section 17,
f) Subsection (4a) of Section 34 of the decree established by Section 18,
g) Subsection (2) and (3) of Section 35 of the decree established by Section 19,
h) Row 3 of Table 2 of Annex 1 of the decree established by Section 21 and Annex 9,
i) Paragraph 26-27 and 59 of Annex 2 of the decree established by Section 21 and Annex 10.
j) Paragraph 65.2 and 73 of Annex 3 of the decree established by Section 21 and Annex 11,
k) Subsection (4) b) of Section 7, Subsectiion (5) a) of Section 7, Subsection (2) of Section 12, Subsection (4) of Section 17, paragraph 38 and 52 of Annex 2, paragraph 1, 3, 4, 5, 11, 22, 37.3, 41.3, 45, 49, Chapter 14, paragraph 58.1, 58.2, 58.3, 59, 60.1, 62.1, 62.2, Chapter 15, paragraph 63.3, 64.2, 64.3, 67.2, 68.2, 69 of Annex 3, paragraph 2.3 and 2.17 of Annex 4 established by Section 22
of the of the decree on the amendment of Govt. Decree 37/2012 (III.9.) Korm, and
l) Section 23
shall be applied to ongoing licensing procedures and to the physical protection plans submitted along them.

Section 37/B

(1) Within 6 months of the entry into force of Govt. decree 357/2014. (XII. 29.) Korm. on the amendment of Govt. decree 118/2011. (VII. 11.) Korm. on nuclear safety requirements and the related authority procedures and Govt. decree 190/2011. (IX. 19.) on the physical protection

requirements for various applications of atomic energy and the corresponding system of licensing, reporting and inspection (hereinafter referred to as: Mód. r.), the HAEA shall:

a) perform the review systems stipulated in (1) a) of Section 3 taking into account the threat to programmable systems; and

b) define the design threat basis as stipulated in (1) c) of Section 3 and send it to those specified in (3) of Section 3.

(2) The obligant with an approved physical protection plan at the time of entry into force of Mód. r., (with the exception of the holder of nuclear material, radioactive source or radioactive waste stipulated in (4) and (5) of Section 7, and for the holder of radioactive source as stipulated in row 1 of Table 2 of Annex 1, and with the exception in (3)) shall submit the physical protection plan as described in (2) of Section 20 as an application described in (1) d) of Section 32 to HAEA within one year of the entry into force of Mód. r.

(3) At the time of entry into force of Mód r., the licensee of a nuclear facility except for that equipped with a nuclear reactor of less than 1 MW thermal power having an approved physical protection plan shall submit the physical protection plan as described in (2) of Section 20 as an application described in (1) d) of Section 32 to HAEA within one year of the notification of the decision stipulated in (1) b).

(4) The licensee of a nuclear facility except for that equipped with a nuclear reactor of less than 1 MW thermal power shall establish or designate the organizational unit stipulated in (3) of Section 20, within 6 months of the entry into force of Mód. r.

(5) In the application described in (2) and (3) the obligant shall demonstrate which requirements stipulated in this decree concerning the physical protection of programmable systems are not met or are partially not met, and shall propose the manner and timing for fulfilling these requirements.

(6) The holder of the equipment specified in (6) of Section 35 as laid down in (10) of Section 4 of Mód. r., who at the time of entry into force of Mód. r. does not have, or has an expired license and does not wish to obtain or renew it, shall declare the equipment on the form provided by the HAEA and demonstrate the implementation method fulfilling the requirements of (2)-(3) within 60 days of the entry into force of Mód. r.

Section 38

(1) The resolution issued by the police according to Section 6 (5) of Ministerial decree 47/1997. (VIII. 26.) BM on the police tasks in relation to use of atomic energy (hereinafter referred to as R.) shall become void on the day of issuance of the regulatory resolution according Section 37 (5).

(2) If the obligant does not submit the application according to Section 37 (2) and (3), the license issued by the police according to Section 6 of R. shall become void on the first day after the deadline specified by this decree for the submittal of the application.

Section 39

(1) The police shall hand over that cases launched according to Section 6 (5) of R. before the entering into force of this decree to the HAEA, which have not been terminated yet by a resolution of first instance.

(2) The HAEA shall consider the regulatory cases handed over according to (1) according to the provisions of this decree.

Section 40

From the time of entering into force of this decree Section 22 a) and Sections 23–27 shall be applied also for the persons employed as armed security guards.

Section 41

Regarding the persons employed as security guards at the time of entering into force of this decree the first physical fitness qualification test shall be passed between the first and last day of the ninth month after the entering into force of this decree.

Section 41/A

(1) Subsection (3) of Section 5 and Subsection (1a) of Section 31 established by Govt. decree 139/2014. (IV.30.) Korm on the modification of certain atomic energy related government decrees (hereinafter referred to as: Mód. Kr.) shall be applied to all proceedings being in progress at the time of entry into force of Mód. Kr.

(2) The HAEA shall inform the clients about the changes in the administration deadline as well as about the expected duration of the administration in writing within 8 days of the entry into force of Mód. Kr.

Section 41/B

(1) At the time of entry into force of Govt. decree 487/2015 (XII.30.) Korm. on the protection against ionizing radiation and the corresponding licensing, reporting (notification) and inspection system (hereinafter referred to as: Ikr.) the holder of radioactive sources specified in row 1 of Table 2 of Annex 2 having an approved physical protection plan shall submit the physical protection plan specified in (2) of Section 20 within one year of the entry into force of the Ikr to the HAEA as part of the application specified in (1) d) of Section 32

(2) The obligant having a valid license for the transport of nuclear material, radioactive source and radioactive waste requiring level D physical protection is not required to complete the registration described in (7) of Section 35 until the expiry of the license.

Section 42

Annex 4 of this decree provides the compliance with Article 6 c) of Council Directive 2003/122/Euratom of 22 December 2003 on the control of high-activity sealed radioactive sources and orphan sources.

Section 43

Section 44

Section 45

Annex 1 to Govt. decree 190/2011. (IX. 19.) Korm.

Categorization of nuclear materials, radioactive sources and radioactive wastes

Table 1
Categorization of nuclear materials

	A	B	C	D	E
1	Material	Form of appearance	Category I	Category II	Category III
2	Plutonium	Unirradiated	2 kg or more	Less than 2 kg, but more than 500 g	500 g or less, but more than 15 g
3	Urán-235	Unirradiated[b]			
4		At least 20% enrichment of U-235	5 kg or more	Less than 5 kg, but more than 1 kg	1 kg or less, but more than 15 g
5		At least 10 % enrichment of U-235, but not more than 20 %		10 kg or more	Less than 10 kg, but more than 1 kg
6		Less than 10 enrichment of U-235, but more than the natural level			10 kg or more
7	Uranium-233	Unirradiated[b]	2 kg or more	Less than 2 kg, but more than 500 g	500 g or less, but more than 15 g
8	Irradiated fuel			Depleted or natural uranium, thorium or low enriched fuel (with 10% fissile material content)	

[a] All plutonium except that with isotopic concentration exceeding 80% in plutonium;
[b] Material not irradiated in a reactor or material irradiated in a reactor but with a radiation level equal to or less than 1 Gy/h at 1 m unshielded;
[c] Other fuel which by virtue of its original fission material content is classified as Category I or II before irradiation may be reduced one category level while the radiation level form the fuel exceeds 1 Gy/h at 1 m unshielded.

Table 2
Categorization of radioactive sources

A	B	C
Category	Common practice (example)	R value
1.	Radioactive Thermoelectric Generator	$R \geq 1000$
	Irradiator facility	
	Teletherapy unit	
	Gamma knife	
2.	Industrial gamma radiography	$1000 > R \geq 10$
	High/medium level dose brachyterapy	
3.	Industrial measurement technique	$10 > R \geq 1$
	– level measurement	
	– conveyor measurements	
4.	Low dose brachyterapy	$1 > R \geq 0.01$
	Wall thickness measurement	
	Portable measurements (e.g. humidity/density measurements)	
5.	X-ray fluorence instruments	$0.01 > R$
	Electron catching instrument	
	Mössbauer spectrometry	
	PET diagnosis	

Where $R = \sum_i \frac{A_i}{D_i}$

A_i – activity of isotope i of the radioactive source;
D_i – isotope specific normalizing factor for isotope i as defined in the Annex of Ministerial decree 11 /2010. (III.4.) KHEM issued by the Minister of transport, telecommunication and energy on the rules of accountancy for and control of radioactive materials, and on the corresponding data provisions (hereinafter referred to as KHEM decree).

Table 3
Categorization of radioactive wastes

	A	B
1.	Radionuclide inventory (R)	Category
2.	R ≥ 1000	1
3.	10 ≤ R < 1000	2
4.	1 ≤ R < 10	3
5.	R < 1	4

Where $R = \sum_i \frac{A_i}{D_i}$, while R_{real} = R x S

A_i – activity of isotope i within the radioactive waste;
D_i – isotope specific normalizing factor for isotope i as defined in the KHEM decree;
S – factor considering the activity concentration of the radioactive waste, its dispersibility, the robustness of the radioactive waste package and its accessibility.

Annex 2 to Govt. decree 190/2011. (IX. 19.) Korm.

Physical protection level specific requirements for the use and storage of nuclear materials, radioactive sources and radioactive wastes

Chapter I

DETERRENCE

1. Warning signs

1. On physical protection level A and B, depending on the actual circumstances, the following signs shall be applied:
1.1. name of the facility,
1.2. warning on vehicle entrance rules,
1.3. warning on unpermitted tools and activities,
1.4. warning on entrance rights,
1.5. requirements for the obligations of entering persons, especially for bag searching,
1.6. indication of metal detector gate,
1.7. indication of package checking device,
1.8. warning on radiation hazard,
1.9. indication of video surveillance area,
1.10. indication of physical protection covered area, and
1.11. warning of entrance hazards, indication of entrance conditions.
2. On physical protection level C and D, depending on the actual circumstances, the following signs shall be applied:
2.1. name of the facility,
2.2. warning on vehicle entrance rules,
2.3. warning on unpermitted tools and activities,
2.4. warning on radiation hazard, and
2.5. warning of entrance hazards, indication of entrance conditions.

2. Warning audio and light signals

3. On physical protection level A, the visible signs shall be supplemented with automatically actuating warning audio and light signs.

3. Artificial barriers (barrier-gates, obstructions, chicanes)

4. On physical protection level A, such artificial obstruction shall be established on the road leading to the main entrance, which is able to prevent the aggressive penetration through the gate and entering by a vehicle.
5. On physical protection level B, such artificial obstruction shall be established on the road leading to the main entrance, which is able to prevent unauthorized penetration, and shall assure the checked entering to the protected facility.
6. On physical protection level C, the protection against unauthorized penetration and the checked entering to the protected facility shall be assured by mobile barriers and road dividers.

7. On physical protection level D, the checked entering to the protected facility shall be assured by road signs, if it consists of more than one physical protection zone; otherwise artificial barriers shall not be applied.

4. Accountancy and control requirements

8. On physical protection level A, the physical inventory of nuclear materials shall be verified in a documented manner at least once a week.

9. On physical protection level B, the physical inventory of nuclear and other radioactive materials shall be verified in a documented manner at least once every two weeks.

10. On physical protection level C, the physical inventory of nuclear and other radioactive materials shall be verified in a documented manner at least once every three months.

11. On physical protection level D, the physical inventory of nuclear and other radioactive materials shall be verified in a documented manner at least once every six months.

CHAPTER II

DETECTION

5. Intrusion and attack detection system

12. On physical protection level A, the detection system shall be established as follows:

12.1. for surface protection the system provides the surveillance of all doors, windows, gates of the boundary surface of the protected building, as well as those walls, ceilings and floors which do not comply with the requirements for overall mechanical-physical protection, and detects the break-trough and penetration attempts;

12.2. for area protection the system provides surveillance of the inner area of the protected building, detects any unauthorized movement, and at least trap-like of the access routes;

12.3. for object protection the system provides surveillance of all concerned objects; and

12.4. for person protection the system continuously provides alarming possibility for each concerned person if attacked, additionally the alarm gone off locally it directly alarm the internal and/or the external response forces.

13. On physical protection level A, the system shall consist of the following elements:

13.1. surface protection by the appropriate combination of

13.1.1. opening-,

13.1.2. glass breaking-, glass cutting-,

13.1.3. wall dismantling sensors, and

13.1.4. barriers;

13.2. area protection by motion sensor;

13.3. object protection by the appropriate combination of:

13.3.1. vibration-,

13.3.2. metal sound-,

13.3.3. stressing-,

13.3.4. displacement-,

13.3.5. dismantling sensors, and

13.3.6. object traps; and

13.4. person protection by the appropriate combination of:

13.4.1. attack-,

13.4.2. vigilance-, and
13.4.3. leaning sensors.
14. On physical protection level B and C, the detection system shall be established as follows:
14.1. for surface protection the system provides the surveillance of all doors, windows, gates of the boundary surface of the protected building, as well as those walls, ceilings and floors which do not comply with the requirements for overall mechanical-physical protection, and detects the break-trough and penetration attempts;
14.2. for area protection the system is trap-like: provides surveillance of the access routes to concerned objects within the buildings and to concerned areas, the alarm goes off locally and alerts the direct environment.
15. On physical protection level B and C, the system shall consist of the following elements:
15.1. surface protection by the appropriate combination of
15.1.1. opening-,
15.1.2. glass breaking-, glass cutting-,
15.1.3. wall dismantling sensors, and
15.1.4. barriers;
15.2. area protection by motion sensor.

6. Video surveillance and assessment system

16. On physical protection level A, the video surveillance and assessment system shall consist of the following elements:
16.1. digital (IP-based) cameras,
16.2. optical image transmission devices, and
16.3. plasma and LCD displays (monitors).
17. On physical protection level A, the minimum required components of the system as listed in Paragraph 16 can be completed with the following components:
17.1. digital (IP-based) recorders, and
17.2. infra reflectors.
18. On physical protection level B, the video surveillance and assessment system shall consist of the following elements:
18.1. digital (IP-based) cameras,
18.2. bunched conductor pairs and optical image transmission devices, and
18.3. plasma and LCD displays (monitors).
19. On physical protection level B, the minimum required components of the system as listed in Paragraph 18 can be completed with the following components:
19.1. digital (IP-based) recorders, and
19.2. infra reflectors.
20. On physical protection level C, the video surveillance and assessment system shall consist of the following elements:
20.1. analogue and digital (IP-based) cameras,
20.2. coaxial and bunched conductor pairs,
20.3. optical and wireless image transmission devices, and
20.4. monitors.
19. On physical protection level C, the minimum required components of the system as listed in Paragraph 20 can be completed with the following components:
19.1. analog and digital (IP-based) recorders, and

19.2. infra reflectors.

7. Entrance control system

22. On physical protection level A, the entrance control system shall consist of the following elements:

22.1. security examination instruments, especially package examiner, explosion detector, metal detector and radiation gate,

22.2. reading-verifying units,

22.3. biometric identifiers, and

22.4. access/egress points.

23. On physical protection level B, the entrance control system shall consist of the following elements:

23.1. reading-verifying units,

23.2. personal identification elements, and

23.3. access/regress points.

24. On physical protection level D, the entrance control system shall consist of the following elements:

24.1. lockable doors, and

24.2. limitation of entrance rights.

8. Central alarm station

25. On physical protection level A:

25.1. the central alarm station shall be located within the increased protection zone, on an areas selected on the basis of physical protection informed risk analysis, either in a separate building or in a building part having separate entrance, which shall be protected from the outside by bullet-proof walls, doors and windows as well as against lighting up;

25.2. the central alarm station shall provide placement for the armed security guards on duty, as well as displaying, processing and assessment of the information received from physical protection alarm and surveillance systems; and

25.3. the central alarm station shall be equipped with wired and wireless communication devices and reserve power supply.

26. On physical protection level B:

26.1. the central alarm station shall be established within the protection zone or on its border in a building, if the building is not exclusively used for security purposes, then the central alarm station shall be separated from the non-security related parts of the building;

26.2. the central alarm station shall be protected from the outside by doors and windows providing mechanical resistance against traditional hand tools;

26.3. the central alarm station shall provide placement for the guards on duty, as well as displaying, processing and assessment of the information received from physical protection alarm and surveillance systems; and

26.4. the central alarm station shall be equipped with wired and wireless communication devices and reserve power supply.

27. On physical protection level C:

27.1. provisions described in 26.1 through 26.4 shall be applied, or

27.2. continuous remote monitoring of all detector systems shall be ensured.

CHAPTER III

DELAY

9. Passive mechanical barriers

28. On physical protection level A the fence shall be established as follows:

28.1. the fence shall exhibit strong protection against intruders equipped with special equipment;

28.2. the fence shall exhibit minimum 2 minutes delay time, it shall have minimum 2.5 meter element height, barb wire or NATO wire to the height of 3 meters, and reinforced continuous foundation at a minimum depth of 50 cm;

28.3. the fence elements shall be made of welded steel, the grid density shall be maximum 10 cm, it shall be made by welding or non-decomposable bolting; and

28.4. the fence columns shall be made with strong concrete foundation, the distance between two columns shall be maximum 2.5 meters, the columns shall be capable to hold barb wire or NATO wire top.

29. On physical protection level A the gates located in various points of the fence shall be established as follows:

29.1. additional gates shall provide reserve access routes and shall support the performance of maintenance actions, and

29.2. the material of these additional gates shall have at least equivalent strength as the material of the fence.

30. On physical protection level A the gates shall be kept closed; they may be opened at the presence of a guard.

31. On physical protection level A the buildings shall comply with the following requirements:

31.1. the walls, ceiling and floor shall exhibit strong mechanical resistance, which shall provide protection equivalent to a dense brick wall having the width of 38 cm and exhibit minimum 15 minutes breakage time against an intruder equipped with special tools;

31.2. the doors and windows shall exhibit resistance equivalent to the walls; and

31.3. air holes having maximum 20x20 cm size shall be applied without grid, while the larger ones shall be secured by girds.

32. On physical protection level B the fence shall be established as follows:

32.1. the fence shall exhibit strong protection against intruders equipped with common tools;

32.2. the fence shall exhibit minimum 1.5 minutes delay time, it shall have minimum 2.5 meter element height, climb over barrier or barb wire to the height of 3 meters, and reinforced continuous foundation at a minimum depth of 50 cm;

32.3. the fence elements shall be made of welded steel, the grid density shall be maximum 12 cm, it shall be made by welding or non-decomposable bolting;

32.4. the fence columns shall be made with strong concrete foundation, the distance between two columns shall be maximum 2.5 meters, the columns shall be capable to hold barb wire or climb over barrier.

33. On physical protection level B the gates located in various points of the fence shall be established as follows:

33.1. additional gates may provide reserve access routes and support the performance of maintenance actions, and

33.2. the material of the gate shall have at least equivalent strength as the material of the fence.

34. On physical protection level B the gates shall be kept closed; they may be opened at the presence of a guard.

35. On physical protection level B the buildings shall comply with the following requirements:

35.1. the walls, ceiling and floor shall exhibit strong mechanical resistance, which shall provide protection equivalent to a dense brick wall having the width of 15 cm and exhibit minimum 10 minutes breakage time against an intruder equipped with special tools;

35.2. the doors and windows shall exhibit resistance equivalent to the walls; and

35.3. air holes having maximum 20x20 cm size shall be applied without grid, while the larger ones shall be secured by girds.

36. On physical protection level C the fence shall be established as follows:

36.1. the fence shall exhibit strong protection against intruders equipped with tools that can be found on the spot;

36.2. the fence shall exhibit minimum 1 minutes delay time, it shall have minimum 2.5 meter element height with barb wire;

36.3. the fence elements shall be made of welded steel, the grid density shall be maximum 15 cm, it shall be made by welding or non-decomposable bolting;

36.4. the fence columns shall be made with strong single foundation, pre-fabricated concretre elements having at least 45 cm depths shall be installed between two columns, the distance between two columns shall be minimum 2.5 meters,

36.5 the columns shall be capable to hold barb wire.

37. On physical protection level C the gates located in various points of the fence shall be established as follows:

37.1. additional gates may provide reserve access routes and support the performance of maintenance actions, and

37.2. the material of these additional gates shall have at least equivalent strength as the material of the fence.

38. On physical protection level C the gates shall be kept closed; they may be opened at the presence of a guard (if there are guards).

39. On physical protection level C the buildings shall comply with the following requirements:

39.1. the walls can be made of bricks or lightweight construction, but they shall exhibit mechanical resistance equivalent that exhibited by a dense brick wall having width of 6 cm against common tools;

39.2. the doors and windows shall exhibit resistance equivalent to the walls; and

39.3. the walls shall exhibit minimum 5 minutes breakage time against an intruder equipped with common tools.

40. On physical protection level D, if the site under protection consists of more than one physical protection zone, then the fence shall be constructed so that:

40.1. the fence shall be erected on the border of the building site or around a separated area;

40.2. the fence shall be made of steel or plastic wire, with single foundation, and it shall be minimum 2 meters high;

40.3. the fence columns shall be made of steel or concrete; and

40.4. it shall exhibit at least 5 seconds delay time.

41. On physical protection level D, if the site under protection consists of more than one physical protection zone, then the gates located on the fence shall be installed so that:

41.1. the gate shall be used as a checkpoint for personal and vehicle access and regress;

41.2. the gate shall reach its closed position within the time interval defined in the physical protection plan;

41.3. the gate shall be made of steel being stronger than the material of the fence; the gate shall exhibit protection as a vehicle barrier and it shall be at least as high as the fence;

41.4. the gate shall be equipped with remotely controlled, motor operated opening equipment, the grid on the gate shall be made of any material stronger than the fence,

41.5. additional gates may provide reserve access routes and support the performance of maintenance actions, and

41.6. the material of these additional gates shall have at least equivalent strength as the material of the fence.

42. On physical protection level D the gates shall be kept closed, and if the physical protection system consists of more than one physical protection zone may be opened at the presence of a guard.

43. On physical protection level D the buildings shall comply with the following requirements:

43.1. the walls can be made of lightweight construction, but they shall exhibit limited mechanical resistance, and

43.2. the walls, doors and windows shall exhibit minimum 3 minutes breakage time against an intruder equipped with common tools.

10. Active moveable mechanical barriers and associated locks

44. On physical protection level A the doors, windows and locks shall exhibit strong mechanical resistance:

44.1. the doors shall exhibit minimum 15 minutes breakage time against an intruder equipped with special equipment;

44.2. the windows shall comply with the same requirements as the doors, what shall be ensured by security glass or by such fix grid that cannot be assembled from outside or a grid inside that can be opened, which is fully welded, has 70x70 mm arrangement and made of 10 mm concrete steel;

44.3. the window casing and frame shall exhibit at least the same resistance as the door and the glass; and

44.4. the locks shall be security locks providing 15 minutes breakage resistance or equivalent.

45. On physical protection level B the doors, windows and locks shall exhibit significant mechanical resistance:

45.1. the doors shall exhibit minimum 10 minutes breakage time against an intruder equipped with special equipment;

45.2. the windows shall comply with the same requirements as the doors, what shall be ensured by security glass or by such fix grid that cannot be assembled from outside or a grid inside that can be opened, which is fully welded, has 90x90 mm arrangement and made of 10 mm concrete steel;

45.3. the window casing and frame shall exhibit at least the same resistance as the door and the glass; and

45.4. the locks shall be security locks providing 10 minutes breakage resistance or equivalent.

46. On physical protection level C the doors, windows and locks shall exhibit significant mechanical resistance:

46.1. the doors shall exhibit minimum 5 minutes breakage time against an intruder equipped with common tools;

46.2. the windows shall comply with the same requirements as the doors, what shall be ensured by glass having 6 mm width or by such fix grid that cannot be assembled from outside or a grid inside that can be opened, which is fully welded, has 140x140 mm arrangement and made of 6 mm concrete steel;

46.3. the window casing and frame shall exhibit at least the same resistance as the door and the glass; and

46.4. the locks shall be security locks providing 5 minutes breakage resistance or equivalent.

47. On physical protection level D such doors, windows and locks shall be installed:

47.1. the doors shall exhibit at least limited mechanical resistance, and exhibit minimum 3 minutes breakage time against an adversary equipped with common tools;

47.2. the windows shall have glass having minimum 6 mm width, the window protecting grids shall be installed on the inner side of the windows; and

47.3. the locks shall be any traditional locks.

11. Security stores, steel plate cabinets

48. On physical protection level A the security store shall be made of such single-wall or double-wall steel plate, the destructive testing of which resulted in 30 RU (Resistant Unit) resistance value for partial penetration and 50 RU resistance value for total penetration;

49. On physical protection level A such lock shall be applied, which

49.1. shall guarantee secure locking by locking of the knobs in one, three or four directions;

49.2. when the lock is not closed, the key shall not be removed from the lock;

49.3. protection against drilling of the lock shall be guaranteed by a minimum 60 HRC hardness anti-drill plate;

49.4. the lock shall be Category "A" EU certified and approved lock; and

49.5. fastening of the consignment shall resist 10 000 N tensile force, including the weight of the store.

50. On physical protection level B the security store shall be made of such single-wall or double-wall steel plate, where the total wall thickness of the cover plates shall be 6-8 mm, the door shall be made of steel plate having the wall thickness of 6-8 mm, the distance between two walls shall be at least 30 mm, and the destructive testing shall result in 30 RU (Resistant Unit) resistance value for partial penetration and 50 RU resistance value for total penetration. Structural concrete fill, sandwich structure made of steel plates having 60 HRC hardness, or protection made in other way shall be built between the two walls.

51. On physical protection level B such lock shall be applied, which

51.1. shall guarantee secure locking by locking of the knobs in one or three directions;

51.2. when the lock is not closed, the key shall not be removed from the lock;

51.3. protection against drilling of the lock shall be guaranteed by a minimum 60 HRC hardness anti-drill plate; and

51.4. fastening of the consignment shall resist 5 000 N tensile force, including the weight of the store.

52. On physical protection level C the security store shall be made of single wall steel plate, where the wall thickness of the cover plates shall be at least 2–4.5 mm, or a solution providing equivalent delay.

53. On physical protection level C such lock shall be applied, which

53.1. shall guarantee secure locking by locking of the knobs in one or three directions;

53.2. when the lock is not closed, the key shall not be removed from the lock;

53.3. protection against drilling of the lock shall be guaranteed by a minimum 60 HRC hardness anti-drill plate; and

53.4. fastening of the consignment shall resist 5 000 N tensile force, including the weight of the store.

54. On physical protection level D the security store shall exhibit resistance equivalent to a piece of lockable office furniture.

12. Activated barriers

55. On physical protection level A the obligant may apply activated barriers, especially like expanded polyurethane foam, stabilized water-based foam, chemically generated smoke or other barriers. If such barriers are applied, then the timeliness of activation shall be ensured by the application of reliable technical solutions and the development of effective procedures.

CHAPTER IV

RESPONSE

13. Internal response forces and on-call police forces

56. On physical protection level A:

56.1. the response shall be performed by internal response forces having at least the same number of persons as the number of independent adversary pathways, and by external response forces arriving within 5 minutes, and

56.2. the internal response forces shall perform patrolling on the site and provide 24 hours guard service.

57. On physical protection level B:

57.1. the response shall be performed by internal response forces having the number of persons that is proportionate to the number of independent adversary pathways, and by external response forces arriving within 10 minutes, and

57.2. the internal response forces shall perform patrolling on the site and provide 24 hours guard service.

58. On physical protection level C the response shall performed by local guards or external response forces arriving within 15 minutes.

59. On physical protection level D the response shall be performed by internal or external response forces.

Annex 3 to Govt. decree 190/2011. (IX. 19.) Korm.

Requirements belonging to physical protection levels during the transport of nuclear materials, radioactive sources and radioactive wastes

Chapter I

PREVENTION, DETERRENCE

1. Warning placards and sings

1. On physical protection level A the following signs shall be applied in the case of a closed transport vehicle to the door of its cargo compartment, in the case of an open transport vehicle on the outside of the vehicle or consignment:

1.1. sign of radiation hazard,

1.2. sign of vehicle having physical protection system,

1.3. warning on prohibited tools and activities, and

1.4. warning on operatory rights.

2. The visible signs shall be supplemented with actuating audible signals.

3. On physical protection level B the following signs shall be applied in the case of a closed transport vehicle to the door of its cargo compartment, in the case of an open transport vehicle on the outside of the vehicle:

3.1. sign of radiation hazard,

3.2. sign of vehicle having physical protection system,

3.3. warning on prohibited tools and activities, and

3.4. warning on operatory rights.

4. On physical protection level C the following signs shall be applied in the case of a closed transport vehicle to the door of its cargo compartment, in the case of an open transport vehicle on the outside of the vehicle:

:

4.1. sign of radiation hazard, and

4.2. warning on prohibited tools and activities.

5. On physical protection level D, the following signs shall be applied in the case of a closed transport vehicle on the door of the cargo compartment, in the case of an open transport vehicle on the outside of the vehicle –with the exception of the surface of the transported consignment- :

5.1. sign of radiation hazard, and

5.2. warning on prohibited tools and activities.

2. Communication

6. On physical protection level A continuous, reliable, secured and redundant communication shall be provided during the transport as follows:

6.1. use of two-way radio communication is allowed only with coded messages,

6.2. during the transport the escort team shall establish regular communication with the driver of the vehicle (if the transport contains several vehicles, then with each driver), the obligant, the consignee, the local authorities and response forces concerned by the route of the transport until the consignment is received by the consignor,

6.3. when planning the transport the obligant shall prepare an action plan for the lack of communication or if the connection is failed at the time point determined in advance.

7. On physical protection level B continuous, reliable mobile communication shall be provided during the transport as follows:

7.1. the driver shall have a list on the availability of contact persons should the driver need help in an emergency situation;

7.2. during the transport the escort team shall establish periodic communication with the driver of the vehicle (if the transport contains several vehicles, then with each driver), the obligant, the consignee, the local authorities and response forces concerned by the route of the transport until the consignment is received by the consignor, and

7.3. when planning the transport the obligant shall prepare an action plan for the lack of communication or if the connection is failed at the time determined in advance.

8. On physical protection level C continuous, reliable mobile communication shall be provided with the obligant during the transport. The driver shall have a list on the availability of contact persons should the driver need help in an emergency situation.

9. On physical protection level D continuous, reliable mobile communication shall be provided with the obligant during the transport.

3. Protection of information, advance notifications

10. On physical protection level A and B, prior to commencement of the transport the obligant shall:

10.1. inform the consignee about the characteristics of the material to be transported, the mode(s) of transport, the expected time and date and venue of arrival;

10.2. obtain clear proof of the fact that the consignee is willing and prepared to receive the consignment; and that the consignee is able to immediately receive the consignment at arrival; and

10.3. the HAEA shall be informed about the transport.

11. On physical protection level A and B, the consignee shall immediately inform the consigner about the arrival of the consignment.

12. On physical protection level C, prior to commencement of the transport the obligant shall:

12.1. inform the consignee about the characteristics of the material to be transported, the mode(s) of transport, the expected time and date and venue of arrival; and

12.2. obtain clear proof of the fact that the consignee is able to immediately receive the consignment at arrival.

4. Escort

13. On physical protection level A the obligant shall assure that:

13.1. minimum two persons shall be on the transport vehicle at all time, which shall be escorted by another vehicle;

13.2. the driver of the transport vehicle shall travel with an armed guard, or one or more armed guards shall travel in the escort vehicle, and

13.3. the consignment and the transport vehicle shall be under continuous surveillance, especially when it is not in move.

14. On physical protection level B the obligant shall assure that:

14.1. minimum two persons shall be on the transport vehicle at all time;

14.2. the transport vehicle shall be protected with an escort consisting of one or two guards; and

14.3. the transport shall be under continuous supervision by the guards travelling either in the transport or the escort vehicle.

5. Knowledge in physical protection

16. On physical protection level A and B the training in physical protection is mandatory every year for those who take part in the transport activities.

17. On physical protection level C the training in physical protection is mandatory every two year for those who take part in the transport activities.

18. On physical protection level D the training in physical protection is mandatory every two year for those who take part in the transport activities.

19. Prior to transport, the obligant shall get proof of the fact whether the selected drivers and escort personnel are aware of the necessary physical protection requirements and are able to meet them.

6. Exclusive use of the vehicle

20. On physical protection level A and B, independently of the mode of transport, the consignment shall be transported in such transport vehicle, which exclusively transport the given material.

7. Open vehicle

21. On physical protection level A consignment having weight exceeding 2000 kg may also be transported on open vehicle, if it is equipped with lock, disassemble sensor and seal, and it is fastened to the transport vehicle with chains able to withstand tensile force of 10 000 N.

22. On physical protection level B, C and D consignment having weight higher than 500 kg may also be transported on open vehicle, if the physical protection equipment are able to provide reliable protection against unauthorized removal.

8. Security checks

23. On physical protection level A and B prior to leading the transport vehicle, compliance with the physical protection requirements shall be verified and the transport vehicle shall be stored in a secured location. After loading, the transport vehicle shall be closed and sealed, and shall not be left unattended.

24. On physical protection level A, B and C the compliance with the physical protection requirements shall be continuously verified; the physical protection functions shall be kept effective during the entire transport.

9. Route selection

25. On physical protection level A and B, alternative route shall also be planned in advance in addition to the primary routes, which all shall be identified in the physical protection plan. In the case of road transport, then best main roads shall be used. The route shall avoid densely populated areas. Should it not be possible, then the exact description of the taking across cities shall be given together with how the transport shall avoid peak traffic hours.

26. On physical protection level A and B, if the required level of physical protection cannot be ensured on the primary transport route, then an alternative route shall be used. When selecting the routes, the quick change between primary and alternative routes shall be considered. The requirement for the arrival times of the response forces shall be met even on the alternative route.

27. On physical protection level A and B, when selecting the route, special attention shall be paid to each evident source of danger, like civil demonstrations and natural sources of dangers (i.e. flood, woods fire, stone fall etc.).

28. On physical protection level A and B the availability and security related characters of the selected route shall be verified prior to the transport; the regularity shall be avoided during route selection.

10. Transport time

29. On physical protection level A and B the transport time, namely the duration spent by the vehicle on the road and the mode of transport shall be determined as follows:

29.1. the number of transports and re-loading shall be minimized, the regularity shall be avoided in scheduling of transports;

29.2. if the transport takes more than one day, then

29.2.1. the transport shall be arranged without stops by more drivers to be changed, or

29.2.2. a guarded and monitored night-time stop meeting the physical protection requirements shall be arranged in advance, and if the stop takes more than one hour, then the facility related physical protection requirements shall be established with the exemption of protection against sabotage, and

29.3. any stop taking more than 24 hours shall be avoided.

30. On physical protection level C, if the transport takes more than one day, then the transport time and the mode of transport shall be determined as follows:

30.1. the transport shall be arranged without stops by more drivers to be changed, or

30.2. a guarded and monitored night-time stop meeting the physical protection requirements shall be arranged in advance, and if the stop takes more than one hour, then the facility related physical protection requirements shall be established with the exemption of protection against sabotage, and

30.3. any stop taking more than 24 hours shall be avoided.

CHAPTER II

DETECTION

11. Unauthorized access and attack signaling system

31. On physical protection level A signaling system shall ensure that only authorized persons have access to the consignment; in the case of unauthorized access or attack the signaling systems shall be activated.

32. On physical protection level A the consignment shall be provided with a security seal so that

32.1. the seal cannot be moved, removed or replaced without being noticed;

32.2. the seal shall have an individual physical or electronic identification; and

32.3. the seal shall be constructed and fixed so that it shall not break or move even in the case of an accident.

33. On physical protection level A then signaling systems shall be capable:

33.1. surface protection shall monitor the doors of the transport,

33.2. volume protection shall supervise the inner space of the transport vehicle and alarm any unauthorized movement,

33.3. object protection shall supervise each loads, and

33.4. person protection shall continuously provide all persons under threat with the chance of alarming,

33.5. the alarm given by the signaling system shall directly notify either the transport security center or the police, or both.

34. On physical protection level A, as part of the physical protection system the following shall be applied:

34.1. for surface protection:

34.1.1. opening-,

34.1.2. breaking, cutting, and

34.1.3. disassemble sensors

in the appropriate combination;

34.2. for volume protection motion sensor;

34.3. for object protection:

34.3.1. tension and

34.3.2. removal sensors, and

34.3.3. object traps in the appropriate combination;

34.4. for person protection:

34.4.1. attack and

34.4.2. vigilance sensors

in the appropriate combination.

35. On physical protection level B signaling system shall ensure that only authorized persons have access to the consignment; in the case of unauthorized access or attack the signaling systems shall be activated.

36. On physical protection level B the consignment shall be provided with a security seal so that

36.1. the seal cannot be moved, removed or replaced without being noticed;

36.2. the seal shall have an individual physical or electronic identification; and

36.3. the seal shall be constructed and fixed so that it shall not break or move even in the case of an accident.

37. On physical protection level B then signaling systems shall be capable:

37.1. the surface protection shall be comprehensive: the signaling system shall monitor the doors of the transport vehicle and alarm any attempt of unauthorized access, and

37.2. the volume protection shall be trap-like: the signaling system shall monitor any approach to the material transported within the transport vehicle, and

37.3. the alarm given by the signaling system shall directly notify the internal or external response forces.

38. On physical protection level B, as part of the physical protection system the following shall be applied:

38.1. for surface protection:

38.1.1. opening-,

38.1.2. breaking, cutting, and

38.1.3. disassemble sensors

in the appropriate combination;

38.2. for volume protection motion sensor.

39. On physical protection level C signaling system shall ensure that only authorized persons have access to the consignment; in the case of unauthorized access or attack the signaling systems shall be activated.

40. On physical protection level C the consignment shall be provided with a security seal so that

40.1. the seal cannot be moved, removed or replaced without being noticed;

40.2. the seal shall have an individual physical or electronic identification; and

40.3. the seal shall be constructed and fixed so that it shall not break or move even in the case of an accident.

41. On physical protection level C then signaling systems shall be capable:

41.1. the surface protection shall be comprehensive: the signaling system shall monitor the doors of the transport vehicle and alarm any attempt of unauthorized access, and

41.2. the volume protection shall be trap-like: the signaling system shall monitor any approach to the material transported within the transport vehicle, and

41.3. the alarm given by the signaling system shall directly notify the driver of the vehicle.

42. On physical protection level C, as part of the physical protection system the following shall be applied:

42.1. for surface protection:

42.1.1. opening-,

42.1.2. breaking, cutting, and

42.1.3. disassemble sensors

in the appropriate combination;

42.2. for volume protection motion sensor.

43. On physical protection level D signaling system shall ensure that only authorized persons have access to the consignment; in the case of unauthorized access or attack the signaling systems shall be activated.

44. On physical protection level D, as surface protection the following shall be applied::

44.1. opening-,

44.2. breaking, cutting, and

44.3. disassemble sensors

in the appropriate combination.

12. Surveillance system

45. On physical protection level A and B the installed video surveillance system shall be capable to monitor the load or the loading area at least when the loading area of the vehicle is opened and/or is in open position.

46. On physical protection level A and B the surveillance system shall contain as minimum the following elements:

46.1. camera,

46.2. image transmission device, and

46.3. monitor in the driver's cabin or in the transport security center, or in both location.

47. On physical protection level A and B the minimum required elements of the surveillance system (as listed in Paragraph 46) can be completed with the following elements:

47.1. recorder, and

47.2. infra reflector.

48. On physical protection level A and B the transport vehicle or the consignment shall be equipped with tracking system, as well as monitoring and tracking equipment, which has radiation resistant transmitter and its power supply is assured for long time by durable batteries.

49. On physical protection level C the video surveillance system installed on the consignment shall be capable to monitor the load or the loading area at least when the loading area of the vehicle is opened and/or is in open position.

50. On physical protection level C the surveillance system shall contain as minimum the following elements:

50.1. camera,

50.2. image transmission device, and

50.3. monitor in the driver's cabin.

51. On physical protection level C the minimum required elements of the surveillance system (as listed in Paragraph 50) can be completed with the following elements:

51.1. recorder, and

51.2. infra reflector.

13. Transport security center

53. On physical protection level A transport security center shall be set up which is equipped with communication tools suitable to monitor and track the transport during the whole route and which can keep continuous communication with the driver and the members of escort of the transport vehicle.

54. On physical protection level B a transport security center shall be set up which is equipped with communication tools suitable to track the consignment during the whole route of the transport.

55. On physical protection level A and B the information received from the physical protection signaling and surveillance system shall be displayed, processed and assessed.

CHAPTER III

DELAY

14. Transport vehicle and sheet metal cabinet doors

56. On physical protection level A:

56.1. the doors of the transport vehicle shall exhibit strong mechanical resistance,

56.2. the vehicle doors shall exhibit resistance against intruder equipped with special tools for a minimum of 15 minutes, and

56.3. other door or window shall not be on the loading area of the transport vehicle.

57. On physical protection level A with respect to attacks and resistance the reveal and the frame of the vehicle door shall have features which are, as a minimum equal to the resistance of the vehicle door.

58. On physical protection level B:

58.1. the doors of the transport vehicle or sheet metal cabinet shall exhibit significant mechanical resistance,

58.2. the transport vehicle or sheet metal cabinet doors shall exhibit resistance against intruder equipped with special tools for a minimum of 10 minutes, and

58.3. other door or window shall not be on the loading area of the transport vehicle or sheet metal cabinet.

59. On physical protection level B with respect to attacks and resistance the reveal and the frame of the vehicle door or sheet metal cabinet shall have features which are, as a minimum equal to the resistance of the vehicle door.

60. On physical protection level C:

60.1. the doors of the transport vehicle or sheet metal cabinet shall exhibit mechanical resistance against common tools,

60.2. the vehicle doors or sheet metal cabinet doors shall exhibit resistance against intruder equipped with traditional hand tools for a minimum of 5 minutes, and

60.3

61. On physical protection level C with respect to attacks and resistance the reveal and the frame of the vehicle door shall have features which are, as a minimum equal to the resistance of the vehicle door.

62. On physical protection level D:

62.1. the doors of the transport vehicle or the doors of the sheet metal cabinet shall exhibit limited mechanical resistance against hand tools,

62.2. the transport vehicle or sheet metal cabinet doors shall exhibit resistance against intruder equipped with traditional hand tools for a minimum of 3 minutes, and

62.3

15 Transport vehicle and sheet metal cabinet door locks

63. On physical protection level A:

63.1. locks shall be locks standardized for security doors capable for 15 minute break through, breakage resistance or its equivalent,

63.2. intactness of the locks and seals of the transport vehicle shall be checked prior to departure, during the transport and at the destination by those participating in the transport in order to get proof of their intactness, and during the transport at least once every 12 hours, and

63.3. the security locks shall have two keys; one of the keys (or the combination to the lock if the key is transported in a combination locked storage container) shall be sent in advance to the consignee of the load the other key shall stay in the possession of the consignor and no key shall be accessible to the driver or the escort without the permission of the central alarm station.

64. On physical protection level B

64.1. locks shall be locks standardized for security doors capable for 10 minute break through, breakage resistance or its equivalent,

64.2. intactness of the locks and seals of the transport vehicle or sheet metal cabinet shall be checked prior to departure and during the transport and at the destination by those participating in the transport in order to get proof of their intactness, and during the transport at least once every 24 hours, and

64.3. the security locks shall have two keys; one of the keys shall be sent in advance to the consignee of the load the other key shall stay in the possession of the consignor. No keys shall be left on the vehicle.

65. On physical protection level C

65.1. locks shall be locks standardized for security doors capable for 5 minute break through, breakage resistance or its equivalent, and

65.2. intactness of the locks and seals of the transport vehicle or sheet metal cabinet shall be checked prior to departure, and at the destination by those participating in the transport in order to get proof of their intactness,.

16. Chassis of the transport vehicle, storage plate cabinet

66. On physical protection level A:

66.1. the chassis of the transport vehicle shall be made of such single-wall or double-wall steel plate, the destructive testing of which resulted in 30 RU resistance value for partial penetration and 50 RU resistance value for total penetration;

66.2. the lock on the loading area of the transport vehicle shall guarantee secure locking by locking of the knobs in one, three or four directions;

66.3. when the lock is not closed, the key shall not be removable from the lock;

66.4. protection against drilling of the lock shall be guaranteed by a minimum 60 HRC hardness anti-drill plate;

66.5. the lock shall be Category "A" EU certified and approved lock; and

66.6. fastening of the consignment shall resist 10 000 N tensile force.

67. On physical protection level B:

67.1. the chassis of the transport vehicle or the storage plate cabinet is such single-wall or double-wall steel plate, where the total wall thickness of the cover plates and the door plate are made of 6-8 mm thick plate and the distance of 30 mm shall be available between the two walls, and the destructive testing of which resulted in 15 RU resistance value for partial penetration and 24 RU resistance value for total penetration;

67.2. the lock on the loading area of the transport vehicle or sheet metal cabinet shall guarantee secure locking by locking of the knobs in one or three directions;

67.3. when the lock is not closed, the key shall not be removable from the lock;

67.4. protection against drilling of the lock shall be guaranteed by a minimum 60 HRC hardness anti-drill plate;

67.5. the lock shall be Category "A" EU certified and approved lock; and

67.6. fastening of the consignment shall resist 5000 N tensile force.

68. On physical protection level C:

68.1. the chassis of the transport vehicle or the storage plate cabinet shall be made of such single-wall plate, where the wall thickness of the cover plates is at least 2mm-4.5 mm;

68.2. the lock on the loading area of the transport vehicle or sheet metal cabinet shall guarantee secure locking by locking of the knobs in one or three directions;

68.3. when the lock is not closed, the key shall not be removable from the lock;

68.4. protection against drilling of the lock shall be guaranteed by a minimum 60 HRC hardness anti-drill plate; and

68.5. fastening of the consignment shall resist 5000 N tensile force (including the fastening force induced by the storage cabinet).

69. On physical protection level D the chassis of the transport vehicle or sheet metal cabinet shall exhibit resistance equivalent to a piece of lockable office furniture.

CHAPTER IV

RESPONSE

70. On physical protection level A the primary and alternative routes as well as the stops during the transport shall be planned that the response shall be effectuated by the escort personnel and the additional on-call external response forces within 5 minutes.

71. On physical protection level B the primary and alternative routes as well as the stops during the transport shall be planned that the response shall be effectuated by the escort personnel and the additional on-call external response forces within 10 minutes.

72. On physical protection level C the primary and alternative routes as well as the stops during the transport shall be planned that the response shall be effectuated by the escort personnel and the additional on-call external response forces within 15 minutes.

73. On physical protection level D the primary and alternative routes as well as the stops during the transport shall be planned that the response shall be effectuated by the escort personnel and the additional on-call external response forces.

Annex 4 to Govt. decree 190/2011. (IX. 19.) Korm.

Content requirements for physical protection plans

1. The physical protection plan of a nuclear facility, a radioactive waste storage or disposal facility, nuclear material, radioactive source or radioactive waste shall contain:

1.1. General data:

1.1.1. administrative data: name, address and contact details of the obligant, contact persons, copy of the ownership registry of the real estate, or if the real estate is rented then the contribution declaration of the renter;

1.1.2. identification of the activity;

1.1.3. description of the close environment of a nuclear facility, and a radioactive waste storage and disposal facility: site with coordinates, scaled map with the indication of physical protection important buildings, access routes, routes, rails and waterways in the vicinity;

1.1.4. description of nuclear material, radioactive source and radioactive waste: its type, quantity, activity, physical state, category, use;

1.1.5. description of the management and storage rules of keys for storage equipment and rooms;

1.1.6. identification of technology systems, structures and components that are significant to radiological consequences;

1.1.7. detailed layout with the indication of the artificial barriers, physical protection zones, nuclear and radioactive materials to be protected, physical protection systems, structures and components, guards points, patrol routes, central alarm station; layout of the storage room and rooms of application;

1.1.8. identification of potential adversary pathways; and

1.1.9. description of insider tactics;

1.2. data on the organization sub-system of physical protection:

1.2.1. organizational structure of physical protection;

1.2.2. physical protection roles and responsibilities within the organization (mangers, assigned contact person);

1.2.3. description of the rule of guarding, and the applied mechanical and electronic asset protection system;

1.2.4. category, organization structure, tasks and rules of operation of armed security guards (if appropriate), number and date of the ordering resolution;

1.2.5. selection of the members of the internal response force; conditions for them;

1.2.6. physical protection training of the members of the internal response force and the entire organization;

1.2.7. preparation, conduct and evaluation of physical protection exercises; and

1.2.8. arms, tools and vehicle (number, type and description) of the internal response forces;

1.3. rules of access and regress;

1.4. physical protection procedures, quality management data:

1.4.1. documentation system (policy, instructions, procedures); and

1.4.2. accountancy for nuclear materials, radioactive sources and radioactive wastes; description of the rules of use;

1.4.3. rules of access, access rights and the recording of access time points;

1.4.4. protection (security) plan of programmable systems;

1.4.5. reporting procedure of events in relation to the operation of the physical protection system;

1.4.6. procedure of investigation of reportable events;

1.4.7. verification of the effectiveness of the physical protection system (exercise programme); and

1.4.8. method, regularity, approval of the revision of the physical protection plan, its storage, name and positions of those having access to the physical protection plan;

1.5. data on the technical sub-system of physical protection:

1.5.1. design and operational specification,, components and their functions;

1.5.2. description of deterrence, detection, delay and response tools; and

1.5.3. maintenance and testing programme;

1.6. external response forces, cooperation with the internal response forces;

1.7. comprehensive evaluation of the physical protection system in reflect to the potential adversary pathways and adversary tactics;

1.8. harmony with plans identified in Section 6 (6);

1.9. plans and procedures of response actions (contingency plan);

1.10. presentation of measures to be implemented if elevated level of physical protection is ordered; and

1.11. special rules with regard to regulatory inspections.

2. The physical protection plan of the transport of nuclear materials, radioactive sources and radioactive wastes shall contain:

2.1. description of the material to be transported: denomination, type (radioactive source, nuclear material, waste), activity, category, quantity (gross and net weight), chemical and physical characteristics, isotope abundance, enrichment or depletion in U-235, U-233 or plutonium if nuclear material, maximum of its dose-rate;

2.2. name, position and contact details of the person responsible for physical protection during the transport;

2.3. description of the transport package and vehicle, detailed drawing of the transport vehicle; in the case of high activity sealed radioactive source, photos of the used packaging and relevant tools and equipment ;

2.4. primary and alternate routes; frontier posts of entry or exit if appropriate;

2.5. planned duration and schedule of the transport;

2.6. methods of tracking the shipment;

2.7. organizations participating in the transport and the tasks thereof;

2.8. physical protection training, evaluation of exercises;

2.9. 2.10. description of the physical protection system;

2.11

2.12. measures to be implemented if elevated level of physical protection is ordered;

2.13. procedure of reporting of physical protection related events;

2.14. plans and procedures of response actions (contingency plan);

2.15. storage of the physical protection plan, names and positions of those having access to the physical protection plan;

2.16. agreement with response forces and other external organizations; special rules with regard to regulatory inspections; and

2.17. emergency response plan.

3.The security plan of the programmable systems shall include:

3.1. registry of the programmable systems, relation between the systems, networks and applications;

3.2. roles and responsibilities of the personnel or organization responsible for the physical protection of the programmable systems;

3.3. implementation of security measures;

3.4. continuous operation, system back-up;

3.5. education, training related to the physical protection, physical protection culture;

3.6. physical protection review;

3.7. change management and lifecycle related to the physical protection of the systems.

Annex 5 to Govt. decree 190/2011. (IX. 19.) Korm.

Exercise list and physical performance evaluation table for armed security guards

I. Proper execution of exercises:

1.1. The 2000 m running can be only scored if the distance is performed by continuous running without stop.

1.2. The points belonging to the time required for the execution shall be counted in the performance test.

2.1. Rules for sitting up:

2.1.1. hooking feet is acceptable; or another person may hold the feet;

2.1.2. legs shall be bended at knees;

2.1.3. fingers of both hands shall hold on neck, elbows shall touch the knees at every sitting up;

2.1.4. shoulder-blade shall touch the ground in the phase of laying; and

2.1.5. exercise shall be executed within a minute.

2.2. The points belonging to the executed number of sitting up exercises shall be counted in the performance test.

3.1. Rules for push up:

3.1.1. legs shall be closed, only toes may touch the ground;

3.1.2. both arms are straight, the back shall be straight;

3.1.3. movement direction of the elbow is optional during arm bending, the upper arms shall be parallel to the ground at the lowest point;

3.1.4. body shall be stable, it shall remain in plane during the execution, the elbow shall be totally straight at the upmost point; and

3.1.5. exercise shall be executed within 30 seconds.

3.2. The points belonging to the executed number of pressing up exercises shall be counted in the performance test.

4.1. Rules for weight lifting:

4.1.1. exercise shall be executed with a two-hand weight of 60 kg on a horizontal bench;

4.1.2. holding positions on the rod and its method are optional;

4.1.3. movement direction of the elbow is optional;

4.1.4. at start the weight shall be in hands, the arm shall be in straight position;

4.1.5. rod shall touch the chest at the lowest point, the arms shall be straight at the uppest point; and

4.1.6. rod shall not jump from the chest.

4.2. The point belonging to the executed number of weight lifting exercises shall be counted in the performance test.

5.1. Rules for standing long jump:

5.1.1. standing position behind the jumping line

5.1.2. swinging both arms, take off using both feet, jumping the longest distance

5.1.3. assessment: score assigned to the distance of the nearest ground level measured from the jumping line.

6.1. 4x10 m shuttle run rules:

6.1.1. start from a standing position behind the starting line;

6.1.2. completion of the 4x10 m distance running between the markers located 10 m from each other;

6.1.3. During turns, the front line shall by touched by foot;

6.1.4. running through the start – finish line the second time closes the timing, measured in seconds and miliseconds.

7.1. Bent arm hang rules:

7.1.1. bent arm hanging: arms at shoulder width, holding underhand or overhand, chin above the bar, which shall not rest on it;

7.1.2. maintain starting position while measuring time;

7.1.3. time taken between the beginning of the hang and descending to below eye level with the bar, measured in seconds.

II. Point tables for specific age groups

Table 1: Point calculation for age group 18 – 25*

Point	Push ups in 30 seconds	Bent arm hang (seconds)	Weight lifting	4x10 m shuttle run (seconds)	Standing long jump (cm)	Sit-ups within 1 minute	2000 m running (minute)
25	35	73	25	8,8	250	55	7:35
24	34	70	24	8,9	245	54	7:40
23	33	67	23	9	242	53	7:45
22	32	64	22	9,1	240	52	7:50
21	31	61	21	9,2	238	51	7:55
20	30	58	20	9,3	236	50	8:00
19	29	55	19	9,4	234	49	8:15
18	28	52	18	9,5	232	48	8:30
17	27	49	17	9,6	230	47	8:45
16	26	46	16	9,7	228	46	9:00
15	25	43	15	9,8	226	45	9:15
14	24	41	14	9,9	224	44	9:30
13	23	39	13	10	222	43	9:45
12	22	37	12	10,1	220	42	10:00
11	21	35	11	10,2	218	40	10:15
10	20	33	10	10,3	216	38	10:30
9	19	30	9	10,4	214	36	10:45
8	18	27	8	10,5	212	34	11:00
7	17	24	7	10,6	210	32	11:20
6	16	21	6	10,7	208	30	11:40
5	15	18	5	10,8	206	29	12:00
4	14	16	4	10,9	204	28	12:20
3	13	14	3	11	202	27	12:40
2	12	12	2	11,1	200	26	13:00
1	11	10	1	11,2	198	25	13:30

*turned in the current year

Table 2: Point calculation for age group 26 – 35*

Point	Push ups in 30 seconds	Bent arm hang (seconds)	Weight lifting	4x10 m shuttle run (seconds)	Standing long jump (cm)	Sit-ups within 1 minute	2000 m running (minute)
25	30	65	23	9	240	45	8:00
24	29	62		9,1	238	44	8:06
23	28	59	22	9,2	236	43	8:12
22	27	56		9,3	234	42	8:18
21	26	54	21	9,4	232	41	8:21
20	25	52	20	9,5	230	40	8:30
19	24	50	19	9,6	228	39	8:40
18	23	48	18	9,7	226	38	8:50
17	22	46	17	9,8	224	37	9:00
16	21	43	16	9,9	222	36	9:15
15	20	40	15	10	220	35	9:30
14	19	37	14	10,1	218	34	9:45
13	18	34	13	10,2	216	33	10:00
12	17	32	12	10,3	214	32	10:15
11	16	30	11	10,4	212	31	10:30
10	15	28	10	10,5	210	30	10:45
9	14	26	9	10,6	208	29	11:00
8	13	24	8	10,7	206	28	11:20
7	12	22	7	10,8	204	27	11:40
6	11	20	6	10,9	202	26	12:00
5	10	17	5	11	200	25	12:20
4	9	15	4	11,1	198	24	12:40
3	8	13	3	11,2	196	23	13:00
2	7	11	2	11,3	194	22	13:30
1	6	9	1	11,4	192	21	14:00

*turned in the current year

Table 3: Point calculation for age group 36 – 45*

Point	Push ups in 30 seconds	Bent arm hang (seconds)	Weight lifting	4x10 m shuttle run (seconds)	Standing long jump (cm)	Sit-ups within 1 minute	2000 m running (minute)
25	25	60	20	9,5	230	40	8:30
24	24	57		9,6	228	39	8:36
23	23	54	19	9,7	226	38	8:42
22	22	51		9,8	224	37	8:48
21	21	49	18	9,9	222	36	8:51
20	20	47		10	220	35	9:00
19	19	45	17	10,1	218	34	9:10
18	18	43		10,2	216	33	9:20
17	17	41	16	10,3	214	32	9:30
16	16	39		10,4	212	31	9:45
15	15	35	15	10,5	210	30	10:00
14	14	32	14	10,6	208	29	10:15
13	13	28	13	10,7	206	28	10:30
12	12	27	12	10,8	204	27	10:45
11	11	25	11	10,9	202	26	11:00
10	10	23	10	11	200	25	11:15
9	9	21	9	11,1	198	24	11:30
8	8	19	8	11,2	196	23	11:45
7	7	17	7	11,3	195	22	12:00
6	6	15	6	11,4	194	21	12:15
5	5	12	5	11,5	193	20	12:30
4	4	10	4	11,6	192	19	13:00
3	3	8	3	11,7	191	18	13:30
2	2	6	2	11,8	190	17	14:00
1	1	4	1	11,9	189	16	14:30

*turned in the current year

Table 2: Point calculation for age group 46 – 50*

Point	Push ups in 30 seconds	Bent arm hang (seconds)	Weight lifting	4x10 m shuttle run (seconds)	Standing long jump (cm)	Sit-ups within 1 minute	2000 m running (minute)
25	20	40	16	11	215	35	9:30
24	19	37		11,2	213	34	9:36
23		35	15	11,4	211	33	9:42
22	18	33		11,6	209	32	9:48
21	17	31	14	11,8	207	31	9:54
20	16	29		11,9	205	30	10:00
19	15	27	13	12	203	29	10:10
18		25		12,2	200	28	10:20
17	14	23	12	12,3	199	27	10:30
16	13	21		12,4	198	26	10:38
15	12	19	11	12,5	197	25	10:46
14		18		12,6	196	24	10:54
13	11	17	10	12,7	195	23	11:02
12		16		12,8	194	22	11:10
11	10	15	9	12,9	193	21	11:18
10		14		13	192	20	11:26
9	9	13	8	13,2	191	19	11:34
8	8	12		13,3	190	18	11:50
7	7	11	7	13,4	189	17	12:10
6	6	10	6	13,5	188	16	12:30
5	5	9	5	13,6	187	15	13:00
4	4	8	4	13,7	186	14	13:30
3	3	7	3	13,8	185	13	14:00
2	2	5	2	13,9	184	12	14:30
1	1	4	1	14	183	11	15:00

* turned in the current year

Table 5: Point calculation for age group 51 – 55*

Point	Push ups in 30 seconds	Bent arm hang (seconds)	Weight lifting	4x10 m shuttle run (seconds)	Standing long jump (cm)	Sit-ups within 1 minute	2000 m running (minute)
25	15	35	12	12	2,00	30	10:30
24		34		12,2		29	10:36
23	14	32	11	12,4		28	10:42
22		30		12,6	195	27	10:48
21	13	28	10	12,8		26	10:54

20		26		13		25	11:00
19	12	24	9	13,2	190	24	11:10
18		20		13,4		23	11:20
17	11	18	8	13,6		22	11:30
16		17		13,8	185	21	11:38
15	10	16	7	14		20	11:46
14		15		14,2		19	11:54
13	9	14	6	14,4	180	18	12:02
12		13		14,6		17	12:10
11	8	12	5	14,8		16	12:18
10		11		15	175	15	12:26
9	7	10	4	15,2		14	12:34
8		9		15,4		13	12:50
7	6	8		15,6	170	12	13:05
6		7	3	15,8		11	13:20
5	5	6		16		10	13:40
4	4	5		16,2	165	9	14:00
3	3	4	2	16,4		8	14:20
2	2	3		16,6		7	14:40
1	1	2	1	16,8	160	6	15:00

* turned in the current year

Table 6: Point calculation for age group over 56*

Point	Push ups in 30 seconds	Bent arm hang (seconds)	Weight lifting	4x10 m shuttle run (seconds)	Standing long jump (cm)	Sit-ups within 1 minute	2000 m running (minute)
25	10	25	8	13:5	190	20	12:30
24				13:7			12:36
23		24		13:9		19	12:42
22	9		7	14:1	180		12:48
21		23		14:3		18	12:54
20				14:5		17	13:00
19	8	21	6	14:7	170	16	13:10
18				14:9		15	13:20
17		19		15:1		14	13:30
16	7		5	15:3	160	13	13:38
15		17		15:5		12	13:46
14				15:7		11	13:54
13	6	15	4	15:9	150	10	14:02
12				16:1		9	14:10
11		13		16:3		8	14:18
10	5		3	16:5	140	7	14:26
9		11		16:7		6	15:34
8				16:9		5	15:50
7	4	9		17:1	135	4	15:05
6			2	17:3		3	15:20
5		7		17:5			15:40
4	3			17:7	130		16:00
3		5		17:9		2	16:20
2	2	3		18:1			16:40
1	1	1	1	18:3	125	1	17:00

* turned in the current year

Physical protection requirement for the design, installation, modification of programmable systems used in nuclear facilities

1. When designing programmable systems, the protection zone model of the programmable systems must be prepared. The programmable systems shall be classified into protection zones according to the importance of the availability of their nuclear safety, physical protection, safeguards and radioactive material registry function, and the confidentiality of the data and information stored in them. Security measures that are different based on importance need to be defined for the different zones.

2. The zone model shall be included in the plan described in (2) of Section 20. The suitability of the protection zones of the programmable systems, the nuclear safety classes and the physical protection zones must be demonstrated.

3. A protection (security) plan must be developed for the programmable systems, that shall include provisions for prevention, detection of intentional or unintentional damages, negative effect of malfunction or failure and restoring safe operation.

4. The protection (security) plan of the programmable systems shall identify all the technical and administrative security measures that will ensure their protection against unintentional damages and cyber-attacks defined in the design basis threat.

5. The protection (security) plan of the programmable system shall be based on and should maintain the defense in depth approach, in order to be able to detect and handle unintentional damages or cyber-attacks as defined in the design basis threat and to restore normal operation as soon as possible.

6. The protection (security) plan for the programmable systems shall include all the procedures and measures designed to detect, address and rectify unintentional damages or cyber-attacks defined in the design basis threat. The plan shall describe how the following will be ensured:

6.1. timely recognition and management of intentional damages or cyber-attacks,

6.2. reducing the consequences of unintentional damages or cyber-attacks,

6.3. timely correction of the vulnerabilities of the programmable systems, and

6.4. restoration of the normal functioning of the programmable systems, networks and devices affected by unintended damages or cyber-attacks.

7. The security plan of programmable systems shall cover at least the following:

7.1. control of physical and logical access,

7.2. configuration management,

7.3. identity and password management,

7.4. access management,

7.5. management of security patches and software updates,

7.6. the use of portable devices or mobile storage media,

7.7. wireless devices and networks,

7.8. remote access, administration and maintenance,

7.9. event management, incident management, backup and recovery,

7.10. procedures for detecting, analyzing documenting and managing threats and vulnerabilities

7.11. regular audits and reviews.

8. A review of the programmable systems shall be carried out in all phases of its life-cycle to identify possible vulnerabilities. During the operation phase, these reviews should be carried out on a regular basis.

9. A systematic risk assessment shall be carried out on the programmable systems for approval by the HAEA

9.1. as part of the application for the construction license,

9.2. as part of the application for the operating license,

9.3 with the frequency specified in the operating license, and

9.4. at the request of the HAEA.

10. The programmable systems shall be designed, installed and operated so that the successive defense layers of defense in depth ensure effective protection against intentional or unintentional interventions designed to alter the intended functionality of the system. An analysis should be made to verify the implementation of the defense in depth.

11. Diversity is important for nuclear safety and physical protection. From a cyber-attack point of view, two programmable systems are considered to be diverse if they are separated from an IT perspective.

12. The document containing the procedures for operation and maintenance of the programmable systems should also show their physical protection requirements.

13. Care should be taken to ensure that during the lifecycle of the programmable systems (design, installation, operation, maintenance) the system and its components are free from unnecessary access possibilities and open ports.

14. The procedure for security update of the programmable systems should be available throughout the entire life-cycle.

15. Modifications affecting programmable systems in a nuclear facility shall be subject to a risk analysis of the physical protection of the programmable system.

16. Any modification to the programmable systems requires the development and conversion specifications to be applied. Modification, change or replacement of the functions, configuration or operation of the components of the programmable system (together with the original

documents or products associated with them) can only be performed with the appropriate verification, validation, approval or licensing process.

17. Compliance with the physical protection requirements of the programmable system should be maintained through configuration management.

18. The functionality and operability of the programmable system should be effectively protected against fast electromagnetic impulses. The licensee should demonstrate the measures taken to fulfil this requirement.