1270.

Pursuant to Article 37 (6) and Article 39 (2) of the Law on Ionizing Radiation Protection and Radiation Safety ("Official Gazette of Montenegro", No. 56/09), the Ministry of Sustainable Development and Tourism

POLICY

ON THE MANNER OF COLLECTION, STORAGE, TREATMENT AND STORAGE OF RADIOACTIVE WASTE

("Official Gazette of Montenegro", No. 058/11 of 06.12.2011) Subject Article 1

This Policy prescribes herself mode collection, Saving processing, Logging i storage of radioactive waste.

Application Article 2

This Ordinance applies to:

1) radioactive waste resulting from a radiation accident;
2) radioactive waste resulting from radiation;
3) used sealed radioactive sources;
4) Radioactive sources without owners (ORFAN);
5) sources of ionizing radiation whose users have been deprived of their license to perform radiation activities or the user has ceased to operate; And
6) Objects and devices containing radioactive materials or being radioactively contaminated in excess of the exclusion levels.

The Meaning of Article 3

The terms used in this Ordinance have the following meanings:

1) A waste package is a product that is intended for the disposal of radioactive waste for safe handling, transport, storage and disposal.
2) Decommissioning is the process of decontamination, dismantling and removal of radioactive waste from a facility where radiation activities are performed or radioactive waste is stored, which achieves the release of these facilities from further supervision of their operation;
3) Radioactive waste inventory means data on the physico-chemical and other characteristics of radioactive waste;
4) A disused radioactive source is a source that is no longer used in radiation.
5) Waste acceptance criteria are qualitative and quantitative conditions that must be met by a company, other legal entity or undertaking that produces or possesses radioactive waste for the safe storage of radioactive waste in accordance with the characteristics of radioactive waste;
6) An exemption level is a limit value, expressed as the concentration of activity and/or total activity, above which a material containing one or more radionuclides is considered radioactive;
7) Clearance level is a limit value, expressed as the concentration of activity and/or total activity of radioactive material containing one or more radionuclides, which is less than or equal to the exemption level;
8) The holder of the license is a company, other legal entity or entrepreneur who has a license to perform radiation activities and/or a license to manage a radioactive waste storage facility;
9) A repository is a radiation facility in which radioactive waste is permanently stored without the intention of reuse.
10) clereance is the process by which radioactive waste ceases to be subject to further control in accordance with the Law on Ionizing Radiation Protection and Radiation Safety;
11) "package" means packaging together with internal partitions or absorbent material and radioactive waste, as well as radioactive waste in bulk, prepared in accordance with handling, transport, storage and/or disposal requirements;
12) surface contamination is the contamination per surface expressed in activity per unit area (Bq/m^2);

Classification of Radioactive Waste Article 4

Radioactive waste is collected, preserved, recorded, treated, stored and disposed of according to the type and its classification.

Radioactive waste is divided into solid, liquid and gaseous waste.

Radioactive waste, according to the degree and type of radioactivity, is classified as exempt radioactive waste (EW), very short-lived radioactive waste (VSLW), very low-level radioactive waste (VLLW), low-level radioactive waste (LLW), intermediate-level radioactive waste (ILW) and high-level radioactive waste (HLW) in accordance with Annex 1, which is an integral part of this Regulation.

Classification Article 5

The permit holder classifies radioactive waste according to its characteristics (type), physical state and class.

The classification of radioactive waste referred to in paragraph 1 of this Article shall determine compressibility, volatility, solubility, flammability, corrosiveness and other physical, chemical and biological properties for the purpose of further treatment of radioactive waste.

The collection, sorting, labelling, storage and preparation for transport of radioactive waste in order to meet the criteria for the acceptability of radioactive waste to the storage facility shall be carried out in accordance with the instructions of the permit holder for the management of the radioactive waste storage facility.

Safekeeping Article 6

Radioactive waste is stored in packaging, containers and tanks, rooms and facilities that should meet safety and security requirements, in accordance with the recommendations and standards of the International Atomic Energy Agency (IAEA).

During the storage of radioactive waste, the licensee shall implement the prescribed radiation safety and safety measures, measures of protection against human radiation and environmental protection, and systematic testing of radioactivity within and in the vicinity of repositories or storage facilities in which radioactive waste is stored.

Processing and Packaging Article 7

Radioactive waste treatment is the process of pre-preparing radioactive waste for treatment and treating it to change the characteristics of radioactive waste for technical, economic or safety reasons, and preparing packaged or unpackaged radioactive waste for transport, storage or disposal.

Radioactive waste shall be treated in the manner specified in the application for obtaining a permit for the management of a radioactive waste storage facility.

Treated radioactive waste is packaged in packages that meet the criteria for the acceptability of radioactive waste for storage.

The packaging in which radioactive waste is packaged and the empty packaging used for the packaging of radioactive waste must be of such characteristics as to ensure the safe storage of radioactive waste.

After emptying the packaging in which the radioactive waste was packaged, the level of radioactive contamination of the packaging is determined by measurement and, if necessary, decontamination is carried out.

Designation Article 8

After treatment, radioactive waste is packaged in packages that must be labeled:

- a label for the purpose of identifying the package and its contents in accordance with Annex 2, which forms an integral part of this Regulation;
- "RADIATION HAZARD" and "RADIOACTIVE WASTE".

The markings referred to in paragraph 1, indent 2 of this Article shall be black or red on a yellow background and shall consist of a radioactivity sign with the dimensions and appearance given in Annex 2 to this Regulation.

The label and markings referred to in paragraph 1 of this Article shall be clear, legible, displayed in a conspicuous place and made in such a way as to ensure their durability.

Labels and markings must be removed from packaging containing radioactive waste, the limit values of which are equal to or less than the prescribed limit values set out in Annex 3, which is an integral part of this Regulation.

Dismissal Article 9

Radioactive waste the concentration of activity (specific activity) or the total activity of radionuclides contained in the radioactive waste is equal to or less than the limit values set out in Annex 3 to this Regulation shall be released from further control.

Records of Radioactive Waste Article 10

Records of radioactive waste shall be kept in electronic form for each year separately on the form given in Annex 4, which is an integral part of this Regulation.

The records referred to in paragraph 1 of this Article shall be kept separately for each package and shall contain data on the fulfilment of the eligibility criteria for the acceptance of radioactive waste into storage.

The data from the radioactive waste records shall be kept until its disposal.

Disposal of Radioactive Waste Article 11

Radioactive waste generated by performing radiation activities shall be temporarily stored in a repository until it is handed over to the radioactive waste storage facility.

A radioactive waste repository must meet the safety and security requirements, as follows:

1) to be resistant to external and internal influences and secured against access by unauthorized persons;

2) that access to and stay of persons in the repository are under the supervision of the responsible person;

3) that there is sufficient space and equipment for the reception, handling and storage of radioactive waste and unhindered access for the monitoring of radioactive waste in order to avoid risks to human health and the environment; (a) to have a ventilation system if necessary;

5) Have a designated surveillance area (control zone);

6) to have equipment for measuring the strength of the ambient dose of gamma radiation.

Radioactive waste generated by performing radiation activities shall be stored in the repository for a maximum of one year until it is handed over to the radioactive waste storage facility.

Storage of Radioactive Waste Article 12

A radioactive waste storage facility is a facility in which radioactive waste is temporarily stored.

Radioactive waste which meets the eligibility criteria set out in Article 17 of this Regulation shall be stored in appropriate packaging.

The packaging in which radioactive waste is stored must meet the requirements for the storage of radioactive waste.

Aging Article 13

Aging is the temporary storage and storage of radioactive waste at the licensee for a certain period of time in order to reduce the activity of radionuclides to the level of release.

If, during aging, the concentration of activity (specific activity) of the contained radionuclides decreases below the prescribed exclusion limits from Annex 3 to this Regulation, the radioactive waste shall be discharged, i.e. it shall not be subject to further control.

Handover and Acceptance of Radioactive Waste Article 14

Prior to the handover of radioactive waste to the holder of a permit for the management of a radioactive waste storage facility, data on radioactive waste from the radioactive waste records shall be submitted.

The handover and acceptance of radioactive waste to the radioactive waste storage facility shall be carried out on the basis of a certificate of acceptance issued by the holder of the permit holder for the management of the radioactive waste storage facility.

Discharge of liquid or gaseous radioactive waste Article 15

Discharges of liquid or gaseous radioactive waste are the planned and controlled release of liquid or gaseous radioactive materials into the environment from a controlled radiation facility in the course of normal use.

Liquid or gaseous radioactive waste shall be released into the environment below the limit values set out in Annex 5, which is an integral part of this Regulation.

Liquid or gaseous radioactive waste, which does not fall within the class of exempt radioactive waste (EW), or exceeds the prescribed discharge limits, must be converted to a solid state.

The activities and quantities of radioactive waste that may be discharged shall be determined separately for each location and behaviour of radionuclides in the environment.

Releases of gaseous radioactive waste during the use of short-lived radionuclides in research, diagnostics or therapy shall be prevented by the installation of appropriate filters in the ventilation system of the area in which the short-lived radionuclides are used.

Waste generated by the use of short-lived radionuclides during research, diagnostics or therapy, such as cotton wool, paper, filter paper, needles, syringes and the like, shall be stored in a repository until values equal to or less than the limit values set out in Annex 3 to this Regulation are reached.

In the case of a mixture of several radionuclides with different half-lives, the method of handling radioactive waste and the storage time in the repository is calculated according to the radionuclide that has the longest half-life.

Radioactive Sources Used Article 16

A used sealed radioactive source or a radioactive source that is no longer intended to be used shall be stored in a radioactive waste storage facility if it cannot be returned to the supplier.

Spent sealed radioactive sources must be packaged in such a way as to prevent the dispersion of radioactive material and must be stored according to its characteristics.

Low-level short-lived disused sealed radioactive sources that are no longer intended to be used may be stored in a repository by the licence holder until the release value is reached, but not longer than one year.

Eligibility Criteria for the Acceptance of Radioactive Waste in a Storage Facility Article 17

Radioactive waste may be stored in a radioactive waste storage facility if it meets the following eligibility criteria relating to:

1) radionuclide content and specific activity;
2) the strength of the dose at the surface and at the reference distance from the surface of the package;
3) specific surface contamination;
4) Firmness;
5) running;
6) mobility of radionuclides;
7) corrosiveness;
8) corrosion resistance;
9) chemical stability;
10) radiation resistance of the material;
11) flammability;
12) the creation and the type of gases that are generated;
13) the presence of substances that have the property to form complex compounds; 14) free water (moisture) content;

(d) the presence of substances which, when reacting with water, release heat and form gases;

16) the content of toxic and toxic substances, pathogenic and infectious materials;
17) explosiveness;
18) gorljivost (combustibility);
19) the prescribed manner of marking the package with radioactive waste; and 20) appropriate packaging and method of packaging of radioactive waste.

Termination of the Rules of Procedure Article 18

On the day of entry into force of this Regulation, the Rulebook on the manner and conditions of collection, storage, storage, treatment and disposal of radioactive waste material ("Official Gazette of the FRY", No. 9/99) shall cease to apply.

Entry into force Article 19

This Ordinance shall enter into force on the eighth day from the date of its publication in the Official Gazette of Montenegro.

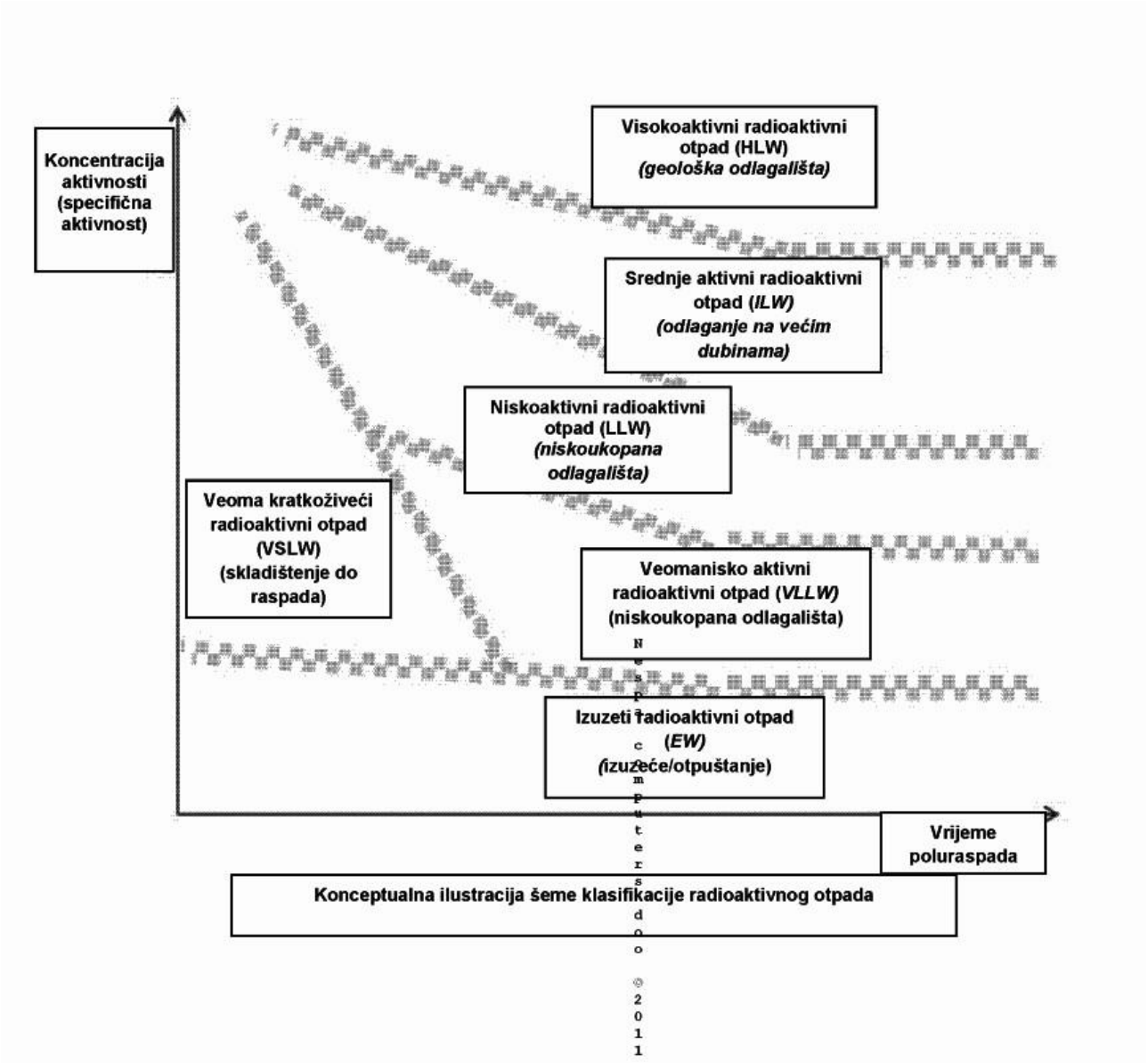
Number: 07-4965/6
Podgorica, 22 November 2011
Minister, Predrag Sekulić, s.r.

Annex 1 Classification of radioactive waste

Classes of radioactive waste with a description of the characteristics and method of disposal	Typical features and method of disposal
Exempt Radioactive Waste (EW)	Waste with an activity concentration (specific activity) or total activity equal to or less than the limit values given in Annex 3.

Very short-lived radioactive waste (VSLW)	Waste that can be stored until disintegration for a limited period of time of several years, after which it can be released from further surveillance (regulatory control), use or release into the environment. This class of waste contains radionuclides with very short half-lives, commonly used in research and medicine.
Very low-level radioactive waste (VLLW)	Waste that does not meet the criteria for exempt radioactive waste (EW), and does not require a high level of protection and isolation, making it suitable for disposal in repositories with limited supervision (Regulatory control). Other types of hazardous waste can also be disposed of in these landfills. A typical waste from this class is soil and rubble with a low concentration of activity (specific activity). The concentrations of long-lived radionuclides in VLLW are very limited.

Low-level radioactive waste	Waste that is above the exemption level but with a limited amount of long-lived radionuclides. This waste requires insulation and protection for a period of more than several hundred years and is suitable for disposal in engineering low-buried landfills. This class covers a wide range of waste. Low-level radioactive waste (LLW) may contain short-lived radionuclides with a high concentration of activity (specific activity), as well as long-lived radionuclides but with a relatively low concentration of activity (specific activity).
Intermediate-level radioactive waste (ILW)	Waste that, due to its content, especially long-lived radionuclides, requires a higher level of protection and isolation than a low-buried landfill. Intermediate-level radioactive waste (ILW) does not require measures, or only to a limited extent, to dissipate heat during storage and disposal. Intermediate-level radioactive waste (ILW) may contain long-lived radionuclides, in particular
	alpha emitters that will not disintegrate to a level of activity concentration (specific activity) suitable for low-carbon landfills over the time for which institutional control is envisaged. Waste in this class requires disposal at greater depths, ranging from several tens to several hundred meters.
High-level radioactive waste (HLW)	Waste with a concentration of activity (specific activity) that is high enough to generate significant heat during the process of radioactive decay, or waste containing significant amounts of long-lived radionuclides, which must be specifically considered when planning the disposal of such waste. Disposal in deep, stable geological repositories hundreds of meters deep is a generally recognized option for high-level radioactive waste (HLW).



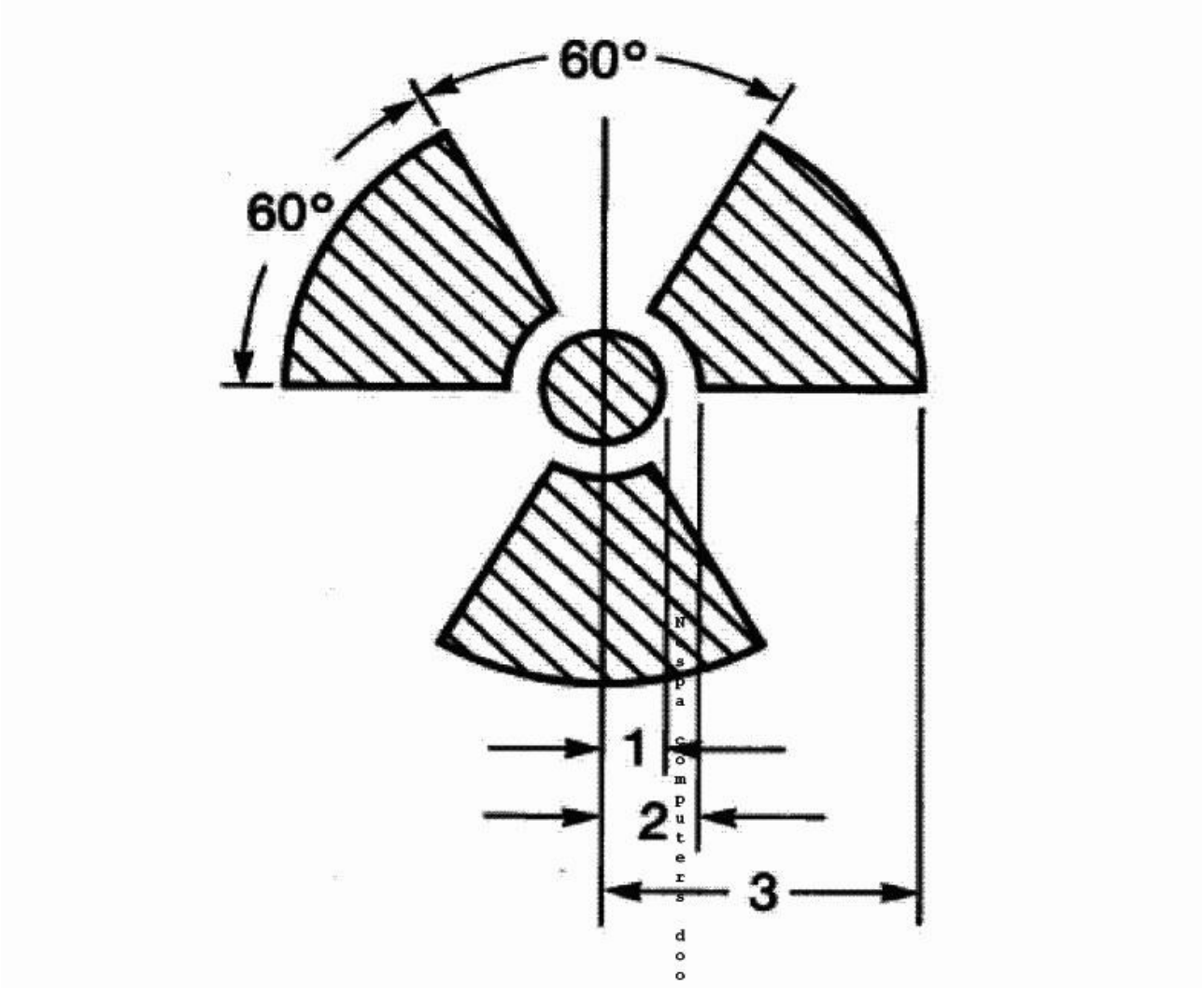
Appendix 2
Label
appearance

UNIQUE PACKAGE IDENTIFICATION	
DATE OF CREATION	
STORAGE DATE	
RADIONUCLIDES PRESENT	
ACTIVITY AND REFERENCE DATE	
RADIOACTIVE WASTE CLASS	
TYPE OF RADIOACTIVE WASTE	
MASA PACKAGE (kg)	

RESPONSIBLE PERSON	

INSPECTION DATE	Maximum value of the ambient equivalent dose measured on the surface of the package (mSv/h)	RESPONSIBLE LICE

Appearance of the sign of radioactivity



1 The radius of the central circle (R)

2 - 1.5 radii of the central circle (1.5 x R)

3 - 5 radii of the central circle (5 x R)

Label - RADIATION HAZARD

Label - RADIOACTIVE WASTE

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Annex 3 Limit values of activity concentration (specific activity) and radionuclide activity below which a particular radionuclide is excluded from surveillance

Radionuclide	Concentration of activity (specific activity) (Bq/g)	Activity (Bq)
H-3	1 E+06	1 E+09
Be-7	1 E+03	1 E+07
C-14	1 E+04	1 E+07
O-15	1 E+02	1 E+09
F-18	1 E+01	1 E+06
Na-22	1 E+01	1 E+06
Na-24	1 E+01	1 E+05
SI-31	1 E+03	1 E+06
P-32	1 E+03	1 E+05
P-33	1 E+05	1 E+08
S-35	1 E+05	1 E+08
CL-36	1 E+04	1 E+06
CL-38	1 E+01	1 E+05
AR-37	1 E+06	1 E+08
AR-41	1 E+02	1 E+09
K-40	1 E+02	1 E+06
K-42	1 E+02	1 E+06
K-43	1 E+01	1 E+06
Ca-45	1 E+04	1 E+07
Ca-47	1 E+01	1 E+06
Sc-46	1 E+01	1 E+06
Sc-47	1 E+02	1 E+06
Sc-48	1 E+01	1 E+05
V-48	1 E+01	1 E+05
CR-51	1 E+03	1 E+07
MN-51	1 E+01	1 E+05
MN-52	1 E+01	1 E+05
MN-52M	1 E+01	1 E+05
Mn-53	1 E+04	1 E+09
Mn-54	1 E+01	1 E+06
MN-56	1 E+01	1 E+05
Fe-52	1 E+01	1 E+06

Fe-55	1 E+04	1 E+06
Fe-59	1 E+01	1 E+06
Co-55	1 E+01	1 E+06
Co-56	1 E+01	1 E+05
Co-57	1 E+02	1 E+06

Co-58	1 E+01	1 E+06
Co-58m	1 E+04	1 E+07
Co-60	1 E+01	1 E+05
Co-60m	1 E+03	1 E+06
Co-61	1 E+02	1 E+06
Co-62m	1 E+01	1 E+05
Ni-59	1 E+04	1 E+08
Ni-63	1 E+05	1 E+08
Ni-65	1 E+01	1 E+06
Cu-64	1 E+02	1 E+06
Zn-65	1 E+01	1 E+06
Zn-69	1 E+04	1 E+06
Zn-69m	1 E+02	1 E+06
Ga-72	1 E+01	1 E+05
Ge-71	1 E+04	1 E+08
AS-73	1 E+03	1 E+07
As-74	1 E+01	1 E+06
AS-76	1 E+02	1 E+05
AS-77	1 E+03	1 E+06
SE-75	1 E+02	1 E+06
Br-82	1 E+01	1 E+06
Kr-74	1 E+02	1 E+09
Kr-76	1 E+02	1 E+09
Kr-77	1 E+02	1 E+09
Kr-79	1 E+03	1 E+05
Kr-81	1 E+04	1 E+07
Kr-83m	1 E+05	1 E+12
Kr-85	1 E+05	1 E+04
KR-85M	1 E+03	1 E+10
Kr-87	1 E+02	1 E+09

Kr-88	1 E+02	1 E+09
Rb-86	1 E+02	1 E+05
SR-85	1 E+02	1 E+06
SR-85M	1 E+02	1 E+07
SR-87M	1 E+02	1 E+06
SR-89	1 E+03	1 E+06
Sr-90*	1 E+02	1 E+04
Sr-91	1 E+01	1 E+05
Sr-92	1 E+01	1 E+06
Y-90	1 E+03	1 E+05
Y-91	1 E+03	1 E+06
Y-91m	1 E+02	1 E+06
Y-92	1 E+02	1 E+05
Y-93	1 E+02	1 E+05

Zr-93*	1 E+03	1 E+07
Zr-95	1 E+01	1 E+06
Zr-97*	1 E+01	1 E+05
NB-93M	1 E+04	1 E+07
Nb-94	1 E+01	1 E+06
Nb-95	1 E+01	1 E+06
Nb-97	1 E+01	1 E+06
Nb-98	1 E+01	1 E+05
Mo-90	1 E+01	1 E+06
Mo-93	1 E+03	1 E+08
Mo-99	1 E+02	1 E+06
Mo-101	1 E+01	1 E+06
TC-96	1 E+01	1 E+06
TC-96M	1 E+03	1 E+07
TC-97	1 E+03	1 E+08
TC-97M	1 E+03	1 E+07
TC-99	1 E+04	1 E+07
TC-99M	1 E+02	1 E+07
Ru-97	1 E+02	1 E+07
Ru-103	1 E+02	1 E+06
Ru-105	1 E+01	1 E+06

Ru-106*	1 E+02	1 E+05
RH-103M	1 E+04	1 E+08
Rh-105	1 E+02	1 E+07
PD-103	1 E+03	1 E+08
PD-109	1 E+03	1 E+06
Ag-105	1 E+02	1 E+06
AG-110M	1 E+01	1 E+06
Ag-111	1 E+03	1 E+06
CD-109	1 E+04	1 E+06
CD-115	1 E+02	1 E+06
CD-115M	1 E+03	1 E+06
In-111	1 E+02	1 E+06
In-113m	1 E+02	1 E+06
In-114m	1 E+02	1 E+06
In-115m	1 E+02	1 E+06
SN-113	1 E+03	1 E+07
SN-125	1 E+02	1 E+05
SB-122	1 E+02	1 E+04
SB-124	1 E+01	1 E+06
SB-125	1 E+02	1 E+06
TE-123M	1 E+02	1 E+07
Te-125m	1 E+03	1 E+07
TE-127	1 E+03	1 E+06

Te-127m	1 E+03	1 E+07
Te-129	1 E+02	1 E+06
Te-129m	1 E+03	1 E+06
TE-131	1 E+02	1 E+05
Te-131m	1 E+01	1 E+06
Te-132	1 E+02	1 E+07
Te-133	1 E+01	1 E+05
TE-133M	1 E+01	1 E+05
TE-134	1 E+01	1 E+06
I-123	1 E+02	1 E+07
I-125	1 E+03	1 E+06
I-126	1 E+02	1 E+06

I-129	1 E+02	1 E+05
I-130	1 E+01	1 E+06
I-131	1 E+02	1 E+06
I-132	1 E+01	1 E+05
I-133	1 E+01	1 E+06
I-134	1 E+01	1 E+05
I-135	1 E+01	1 E+06
Xe131m	1 E+04	1 E+04
Xe-133	1 E+03	1 E+04
Xe-135	1 E+03	1 E+10
Cs-129	1 E+02	1 E+05
CS-131	1 E+03	1 E+06
CS-132	1 E+01	1 E+05
CS-134M	1 E+03	1 E+05
CS-134	1 E+01	1 E+04
Cs-135	1 E+04	1 E+07
CS-136	1 E+01	1 E+05
Cs-137*	1 E+01	1 E+04
CS-138	1 E+01	1 E+04
BA-131	1 E+02	1 E+06
BA-140*	1 E+01	1 E+05
La-140	1 E+01	1 E+05
CE-139	1 E+02	1 E+06
CE-141	1 E+02	1 E+07
CE-143	1 E+02	1 E+06
CE-144*	1 E+02	1 E+05
PR-142	1 E+02	1 E+05
PR-143	1 E+04	1 E+06
Nd-147	1 E+02	1 E+06
Nd-149	1 E+02	1 E+06
PM-147	1 E+04	1 E+07
PM-149	1 E+03	1 E+06

SM-151	1 E+04	1 E+08
SM-153	1 E+02	1 E+06
EU-152	1 E+01	1 E+06

EU-152m	1 E+02	1 E+06
EU-154	1 E+01	1 E+06
EU-155	1 E+02	1 E+07
GD-153	1 E+02	1 E+07
GD-159	1 E+03	1 E+06
TB-160	1 E+01	1 E+06
D-165	1 E+03	1 E+06
Dy-166	1 E+03	1 E+06
Ho-166	1 E+03	1 E+05
Er-169	1 E+04	1 E+07
Er-171	1 E+02	1 E+06
TM-170	1 E+03	1 E+06
TM-171	1 E+04	1 E+08
Yb-175	1 E+03	1 E+07
Mon-177	1 E+03	1 E+07
HF-181	1 E+01	1 E+06
Ta-182	1 E+01	1 E+04
W-181	1 E+03	1 E+07
W-185	1 E+04	1 E+07
W-187	1 E+02	1 E+06
Re-186	1 E+03	1 E+06
Re-188	1 E+02	1 E+05
OS-185	1 E+01	1 E+06
OS-191	1 E+02	1 E+07
OS-191M	1 E+03	1 E+07
OS-193	1 E+02	1 E+06
IR-190	1 E+01	1 E+06
IR-192	1 E+01	1 E+04
IR-194	1 E+02	1 E+05
Pt-191	1 E+02	1 E+06
PT-193M	1 E+03	1 E+07
Pt-197	1 E+03	1 E+06
PT-197M	1 E+02	1 E+06
AU-198	1 E+02	1 E+06
AU-199	1 E+02	1 E+06
Hg-197	1 E+02	1 E+07

Hg197m	1 E+02	1 E+06
Hg-203	1 E+02	1 E+05
TL-200	1 E+01	1 E+06
TL-201	1 E+02	1 E+06
TL-202	1 E+02	1 E+06

TL-204	1 E+04	1 E+04
Pb-203	1 E+02	1 E+06
Pb-210*	1 E+01	1 E+04
Pb-212*	1 E+01	1 E+05
Bi-206	1 E+01	1 E+05
Bi-207	1 E+01	1 E+06
Bi-210	1 E+03	1 E+06
Bi-212*	1 E+01	1 E+05
PO-203	1 E+01	1 E+06
PO-205	1 E+01	1 E+06
PO-207	1 E+01	1 E+06
PO-210	1 E+01	1 E+04
AT-211	1 E+03	1 E+07
RN-220*	1 E+04	1 E+07
RN-222*	1 E+01	1 E+08
Ra-223*	1 E+02	1 E+05
Ra-224*	1 E+01	1 E+05
Ra-225	1 E+02	1 E+05
Ra-226*	1 E+01	1 E+04
Ra-227	1 E+02	1 E+06
Ra-228*	1 E+01	1 E+05
AC-228	1 E+01	1 E+06
Th-226*	1 E+03	1 E+07
Th-227	1 E+01	1 E+04
Th-228*	1 E+00	1 E+04
Th-229*	1 E+00	1 E+03
Th-230	1 E+00	1 E+04
Th-231	1 E+03	1 E+07
Th-nat		
(uklj. Th-232)	1 E+00	1 E+03

Th-234*	1 E+03	1 E+05
PA-230	1 E+01	1 E+06
PA-231	1 E+00	1 E+03
PA-233	1 E+02	1 E+07
U-230*	1 E+01	1 E+05
U-231	1 E+02	1 E+07
U-232*	1 E+00	1 E+03
U-233	1 E+01	1 E+04
U-234	1 E+01	1 E+04
U-235*	1 E+01	1 E+04
U-236	1 E+01	1 E+04
U-237	1 E+02	1 E+06
U-238*	1 E+01	1 E+04
U-natural	1 E+00	1 E+03
U-239	1 E+02	1 E+06
U-240	1 E+03	1 E+07
U-240*	1 E+01	1 E+06
NP-237*	1 E+00	1 E+03
NP-239	1 E+02	1 E+07
NP-240	1 E+01	1 E+06
Pu-234	1 E+02	1 E+07
Pu-235	1 E+02	1 E+07
Pu-236	1 E+01	1 E+04
Pu-237	1 E+03	1 E+07
Pu-238	1 E+00	1 E+04
Pu-239	1 E+00	1 E+04
Pu-240	1 E+00	1 E+03
Pu-241	1 E+02	1 E+05
Pu-242	1 E+00	1 E+04
Pu-243	1 E+03	1 E+07
Pu-244	1 E+00	1 E+04
AM-241	1 E+00	1 E+04
AM-242	1 E+03	1 E+06
AM-242m*	1 E+00	1 E+04
Am243*	1 E+00	1 E+03
cm-242	1 E+02	1 E+05

cm-243	1 E+00	1 E+04
cm-244	1 E+01	1 E+04
cm-245	1 E+00	1 E+03
cm-246	1 E+00	1 E+03
cm-247	1 E+00	1 E+04
cm-248	1 E+00	1 E+03
Bk-249	1 E+03	1 E+06
CF-246	1 E+03	1 E+06
CF-248	1 E+01	1 E+04
CF-249	1 E+00	1 E+03
CF-250	1 E+01	1 E+04
CF-251	1 E+00	1 E+03
CF-252	1 E+01	1 E+04
CF-253	1 E+02	1 E+05
CF-254	1 E+00	1 E+03
ES-253	1 E+02	1 E+05
ES-254	1 E+01	1 E+04
Es-254m	1 E+02	1 E+06
FM-254	1 E+04	1 E+07
FM-255	1 E+03	1 E+06

∗Radionuclides and their radioactive descendants involved in secular equilibrium:

The name of the radionuclide	Potomci
1	2
90 Mr	90 AND
93 Zr	93 mNb
97 Zr	97 Nb
106 Ru	106 Rh
137 Cs	137 mBa
134 This	134 The
144 This	144 Pr
140 Ba	140 The
21 2Bi	208 Tl (0,36), 212 Po (0,64)
210 Pb	210 Bi, 210 Po
212 Pb	212 Bi, 208 Tl (0,36), 212 Po (0,64)
220 Rn	216 After

222 Rn	218 Mon, 214 Pb, 214 Bi, 214 Po
223 Ra	219 Rn, 215 Po, 211 Pb, 211 Bi, 207 Tl
224 Ra	220 Rn, 216 Po, 212 Pb, 212 Bi, 208 Tl (0,36), 212 Po (0,64)
226 Ra	222 Rn, 218 Po, 214 Pb, 214 Bi, 214 Po, 210 Pb, 210 Bi, 210 Po, 210 Po, 210 Po, 210 Po, 214 Pb, 214 Po, 214 Po, 214 Po, 214 Po, 214 Po, 214 Po, 214 Po, 210 Po, 210 Po, 214 Po, 210 Pb, 214 Po, 210
228 Ra	228 AND
226 Th	222 Ra, 218 Rn, 214 Po
228 Th	224 Ra, 220 Rn, 216 Po, 212 Pb, 212 Bi, 208 Tl(0,36), 212 Po(0,64)
229 Th	225 Ra, 225 Ac, 221 Fr, 217 At, 213 Bi, 213 Po, 209 Pb
Th-natural	228 Ra, 228 Ac, 228 Th, 224 Ra, 220 Rn, 216 Po, 212 Pb, 212 Bi, 208 Tl(0,36), 212 Po (0,64)
234 Th	234 mPa
230 H	226 Th, 222 Ra, 218 Rn, 214 Po
232 h	228 Th, 224 Ra, 220 Rn, 216 Po, 212 Pb, 212 Bi, 208 Tl (0,36), 212 Po (0,64)
235 H	231 Th
238 H	234 Th, 234 mPa
U-natural	234 Th, 234 mPa, 234 U, 230 Th, 226 Ra, 222 Rn, 218 Po, 214 Pb, 214 Bi, 214 Po, 210 Pb, 210 Bi, 210 Po
240 h	240 mNp
237 Np	233 Pa
242 mAm	242 Am
243 Am	239 Np

Annex 4 Radioactive Waste Records

Table I: Record Form for Solid or Liquid Radioactive Waste

Regular No.	Data type	Data Entry	Unit of measurement
1	Consecutive Parcel Registration Number		
2	A licensee who produces or possesses radioactive waste.		
3	Name of the facility (repository, warehouse)		
4	Location of the package in the facility		
5	Radioactive waste class		
6	Type-specific descriptive definition of characteristics		
7	Date of generation of radioactive waste, used for the calculation of activities		

9	Type-approved packaging		
10	Package Weight		kg
11	Package Volume		m3
12	Surface contamination of packages		Bq/m^2
13	Maximum ambient equivalent dose strength value measured on the surface of the packet		mSv/h
14	Description of the processing process		
15	Further processing operations		
16	The year in which packet activity is projected to be below the exclusion level		year
17	Radionuclides in accordance with Table I.a Radionuclide inventory		

Table I.a: Form of records on the inventory of radionuclides in the package

	Data type	**Data Entry**	**Unit of measurement**
1	Radionuclide activity at the date in Table I		MBq
2	Percentage of radionuclide activity in total activity		%
3	Radionuclide designation (symbol and number)		
4	The number of packages from Table I		

Note: The radionuclide inventory for each package consists of as many record forms as the number of different radionuclides in the package

Table II: Form of Records on Discharged Radioactive Waste

Regular No.	**Data type**	**Data Entry**	**Unit of measurement**
1	Discharge Registration Number		
2	A licensee who produces or possesses radioactive waste.		
3	Outlet location		
4	Latitude of the outlet location		
5	Longitude of the location of the outlet		
6	Altitude of the outlet location		m
7	Release start date		

8	Release End Date		
9	Physical state (gas or liquid)		
10	Amount of released substance		m3
11	Total Dropped Activity		MBq
12	Quotient discharged/allowed		
13	Radionuclides in accordance with Table IIa		

Table IIa: Form of records on the inventory of radionuclides in the discharge

	Data type	**Data Entry**	**Unit of measurement**
1	Radionuclide activity at the date of release		MBq
2	Percentage of radionuclide activity in total activity		%
3	Radionuclide designation (symbol and number)		
4	Number of discharges from Table II		

Note: The radionuclide inventory for each discharge consists of as many record forms as the number of different radionuclides in the discharge

Table III: Form of Records on Annual Projection of Radioactive Waste

Order. No.	**Data type**	**Data Entry**	**Unit of Measure**
1	A licensee who produces or possesses radioactive waste.		
2	Object name		
3	The year for which the projection was made (date)		
4	Radioactive waste class in accordance with Table IIIa		

Table IIIa: Record Form for Individual Class of Radioactive Waste

	Data type	**Data Entry**	**Unit of measurement**
1	Description of the radioactive waste class		
2	Radioactive waste class		
3	Volume		m3
4	Mass		kg
5	Activity		MBq
6	Further processing (number and description)		

7	A year in which class activity is projected to fall below the exclusion level.		
8	Radionuclides in accordance with Table III.b		

Note: Individual radioactive waste classes for each year have as many record forms as the number of different radioactive waste classes envisaged

Table III.b: Radionuclide Inventory Record Form

	Data type	**Data Entry**	**Unit**
1	Radionuclide activity at the date of occurrence		MBq
2	Percentage of radionuclide activity in the total activity of the class		%
3	Radionuclide designation (symbol and number)		
4	Class designation from Table III		

Note: The radionuclide inventory for each class consists of as many record forms as the anticipated number of different radionuclides in the class

Annex 5 Release Table I: Activity concentration limits (specific activities) of artificially generated radionuclides in bulk below which radioactive waste can be released into the environment

radionuclide	**concentration of activity (specific activity) (Bq/g)**	**Note**
H-3	**100**	
Be-7	**10**	
C-14	**1**	
F-18	**10**	**a**
Na-22	**0.1**	
Na-24	**1**	**a**
Si-31	**1000**	**a**
P-32	**1000**	
P-33	**1000**	
S-35	**10**	
CL-36	**1**	
CL-38	**10**	**a**
K-42	**100**	
K-43	**10**	**a**

Ca-45	**100**	
Ca-47	**10**	
Sc-46	**0.1**	
Sc-47	**100**	
Sc-48	**1**	
V-48	**1**	
Cr-51	**100**	
Mn-51	**10**	**a**
Mn-52	**1**	
Mn-52m	**10**	**a**
Mn-53	**100**	
Mn-54	**0.1**	
Mn-56	**10**	**a**

Fe-52	**10**	**a**
Fe-55	**1000**	
Fe-59	**1**	
Co-55	**10**	**a**
Co-56	**0.1**	
Co-57	**1**	
Co-58	**1**	
Co-58m	**10000**	**a**
Co-60	**0.1**	
Co-60m	**1000**	**a**
Co-61	**100**	**a**
Co-62m	**10**	**a**
Ni-59	**100**	
Ni-63	**100**	
Ni-65	**10**	**a**
Cu-64	**100**	**a**
Zn-65	**0.1**	

Zn-69	**1000**	**a**
Zn-69M	**10**	**a**
GA-72	**10**	**a**
GE-71	**10000**	
As-73	**1000**	
As-74	**10**	**a**
As-76	**10**	**a**
As-77	**1000**	
SE-75	**1**	
Br-82	**1**	
Rb-86	**100**	
Sr-85	**1**	
SR-85M	**100**	**a**
SR-87M	**100**	**a**
Sr-89	**1000**	
Sr-90	**1**	
Sr-91	**10**	**a**
Sr-92	**10**	**a**
Y-90	**1000**	
Y-91	**100**	
Y-91m	**100**	**a**
Y-92	**100**	**a**
Y-93	**100**	**a**
Zr-93	**10**	**a**
Zr-95	**1**	
Zr-97	**10**	**a**
NB-93M	**10**	

NB-94	**0.1**	
NB-95	**1**	
NB-97	**10**	**a**
NB-98	**10**	**a**

Mo- 90	**10**	**a**
Mo- 93	**10**	
Mo- 99	**10**	
Mo- 101	**10**	**a**
Tc-96	**1**	
TC-96M	**1000**	**a**
Tc-97	**10**	
TC-97M	**100**	
Tc-99	**1**	
TC-99M	**100**	**a**
Ru-97	**10**	
Ru-103	**1**	
Ru-105	**10**	**a**
Ru-106	**0.1**	
RH-103M	**10000**	**a**
RH-105	**100**	
Pd-103	**1000**	
Pd-109	**100**	
At-105	**1**	
At-110m	**0.1**	
At-111	**100**	
Cd-109	**1**	
Cd-115	**10**	
Cd-115m	**100**	
In-111	**10**	
In-113m	**100**	**a**
In-114m	**10**	
In-115m	**100**	**a**
SN-113	**1**	
SN-125	**10**	

Sb-122	**10**	
Sb-124	**1**	
Sb-125	**0.1**	
Te-123m	**1**	
The -125m	**1000**	
TE-127	**1000**	
The 127m	**10**	
Te-129	**100**	**a**
The 129m	**10**	
TE-131	**100**	**a**

Te-131m	**10**	
Te-132	**1**	
Te-133	**10**	**a**
The 133m	**10**	**a**
TE-134	**10**	**a**
I-123	**100**	
I-125	**100**	
I-126	**10**	
I-129	**0.01**	
I-130	**10**	**a**
I-131		**10**
I-132	**10**	**a**
I-133	**10**	**a**
I-134	**10**	**a**
I-135	**10**	**a**
Cs-129	**10**	
Cs-131	**1000**	
Cs-132	**10**	
Cs-134	**0.1**	
Cs-134m	**1000**	**a**

Cs-135	**100**	
Cs-136	**1**	
Cs-137	**0.1**	
Cs-138	**10**	**a**
Ba-131	**10**	
Ba-140	**1**	
La-140	**1**	
Ce-139	**1**	
CE-141	**100**	
CE-143	**10**	
CE-144	**10**	
PR-142	**100**	**a**
PR-143	**1000**	
Nd-147	**100**	
Nd-149	**100**	**a**
Pm-147	**1000**	
Pm-149	**1000**	
Sm-151	**1000**	
Sm-153	**100**	
Eu-152	**0.1**	
I-152m	**100**	**a**
Eu-154	**0.1**	
Eu-155	**1**	
GD-153	**10**	

GD-159	**100**	**a**
Tb-160	**1**	
Two-165	**1000**	**a**
Dy-166	**100**	
H-166	**100**	

ER-169	**1000**	
ER-171	**100**	**a**
Tm-170	**100**	
Tm-171	**1000**	
Yb-175	**100**	
Lu-177	**100**	
Hf-181	**1**	
Ta-182	**0.1**	
W-181	**10**	
W-185	**1000**	
W-187	**10**	
Re-186	**1000**	
Re-188	**100**	**a**
OS-185	**1**	
OS-191	**100**	
Os-191m	**1000**	**a**
OS-193	**100**	
Ir-190	**1**	
Ir-192	**1**	
Ir-194	**100**	**a**
Pt-191	**10**	
PT-193M	**1000**	
Pt-197	**1000**	**a**
PT-197M	**100**	
Au-198	**10**	
Au-199	**100**	
Hg-197	**100**	
Hg-197m	**100**	
Hg-203	**10**	

Tl-200	**10**	
Tl-201	**100**	
Tl-202	**10**	
Tl-204	**1**	
Pb-203	**10**	
Bi-206	**1**	
Two-207	**0.1**	
Post-203	**10**	**a**
Post-205	**10**	**a**
Post-207	**10**	**a**

At-211	**1000**	
Ra-225	**10**	
Ra-227	**100**	
Th-226	**1000**	
Th-229	**0.1**	
PA-230	**10**	
PA-233	**10**	
U-230	**10**	
U-231	**100**	
U-232	**0.1**	
U-233	**1**	
U-236	**10**	
U-237	**100**	
U-239	**100**	**a**
U-240	**100**	**a**
Np-237	**1**	
Np-239	**100**	
NP-240	**10**	**a**
PU-234	**100**	**a**

PU-235	**100**	**a**
PU-236	**1**	
PU-237	**100**	
PU-238	**0.1**	
PU-239	**0.1**	
PU-240	**0.1**	
PU-241	**10**	
PU-242	**0.1**	
PU-243	**1000**	**a**
PU-244	**0.1**	
Am-241	**0.1**	
Am-242	**1000**	**a**
Am-242m	**0.1**	
Am-243	**0.1**	
Cm-242	**10**	
Cm-243	**1**	
Cm-244	**1**	
Cm-245	**0.1**	
Cm-246	**0.1**	
Cm-247	**0.1**	
Cm-248	**0.1**	
Bk-249	**100**	
CF-246	**1000**	
CF-248	**1**	
CF-249	**0.1**	
CF-250	**1**	
CF-251	**0.1**	
CF-252	**1**	
CF-253	**100**	

CF-254	**1**	
ES-253	**100**	
ES-254	**0.1**	
Es-254m	**10**	
Fm-254	**10000**	**a**
Fm-255	**100**	**a**

Note: "A" indicates a half-life of less than 1 day.

Table II: Activity concentration limits (specific activity) of natural radionuclides below which radioactive waste may be released into the environment

radionuclide	concentration of activity (specific activity) (Bq/g)
K-40	10
Other natural radionuclides	1