GERMANY

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A. National Framework for Management of Radioactive Waste and Spent Fuel

A.1 National Nuclear Energy Context

The commercial use of nuclear power in Germany started in 1961. The peak value of installed nuclear capacity was reached in 1994, when 21 power reactors were in operation with an installed capacity of 23.9 GWe. With the 13th amendment to the Atomic Energy Act of 6 August 2011, the operating licences of six nuclear power plants expired immediately and the licences for the remaining nine nuclear power plants will expire between 2015 and 2022.

A.2 Definition of Radioactive Waste

Radioactive residues are produced during the operation of nuclear facilities and installations, as well as during the decommissioning and dismantling of such facilities. These residues are composed of reusable or recyclable materials and radioactive waste. Radioactive waste refers to materials that cannot be safely reused and must therefore be disposed of in a controlled way. The aforementioned activities may also generate material which is only marginally contaminated or activated. Provided such material is proven to comply with the clearance levels, it may be released and utilised, removed, owned or forwarded to third parties as non-radioactive material. The compliance with the release limits ensures that during the reuse or the disposal of such waste any noticeable exposure to the general public is precluded.

In the case of naturally occurring radioactive material (NORM), Germany makes a distinction between "practices", referring to the use of radioactive material and ionising radiation and "work activities", referring to actions involving materials which, although containing naturally occurring radionuclides, are not used for their radioactive properties. NORM residues are regulated differently than radioactive waste.

A.3 Radioactive Waste and Spent Fuel Policies

Germany´s legal requirement is that prior to disposal, all steps of treatment of the radioactive waste are subjected to the polluter-pays principle. Disposal itself is the responsibility of the Federation. In accordance with this principle, the state obligates the producers of waste by law to ensure the controlled and safe management of radioactive waste generated during the operation and decommissioning of nuclear facilities.

The objective regarding the management of spent fuel has changed. Until 1994, the Atomic Energy Act (AtG) included the requirement of reusing the fissile material in the spent fuel. This requirement changed in 1994, and the operators of nuclear power plants then had the option of either reuse by reprocessing, or else of direct disposal. Since 1 July 2005, delivery

of spent fuel from power reactors for the purposes of reprocessing has been prohibited in accordance with an amendment to the AtG to this effect of 22 April 2002. Now, it is only allowed to directly dispose of the spent fuel existing and being generated in Germany in the future. For the spent fuel that had been delivered for reprocessing until 30 June 2005, the proof of reuse of the recycled plutonium separated during reprocessing must be furnished. As there is yet no repository available for the spent fuel, it will be stored intermediately at the sites of NPP where it was generated or in centralised interim storage facilities until a repository is commissioned, in order to avoid the transportation of spent fuel; corresponding storage facilities exist as needed. Usually, the spent fuel from research reactors will be returned to its country of origin for disposal. If this is not possible, it will be intermediately stored until its final transportation to the repository.

In Germany, the intention is that all types of radioactive waste be disposed of in deep geological formations. This applies to waste from the reprocessing of spent fuel from German nuclear power plants at facilities in other European countries, to waste from the operation, decommissioning and dismantling of commercially operated nuclear facilities as well as to waste originating from the use of radioisotopes in research, industry and medicine. The intention to dispose of all types of radioactive waste in deep geological formations also makes it unnecessary to differentiate between waste containing radionuclides with comparatively short half-lives and waste containing radionuclides with comparatively long half-lives. In accordance with the German approach to disposal, the definition and classification of radioactive waste must therefore comply with the requirements for safety assessment of an underground repository. In this respect, waste is subjected to a basic subdivision into heat-generating waste and waste with negligible heat generation.

B. National Legal and Regulatory Framework

B.1 Framework Requirements due to the Federal Structure

The Federal Republic of Germany is a federation consisting of 16 federal states (*Länder*). The responsibilities for law making and law enforcement are assigned differently to the organs of the Federation and the *Länder* according to the respective regulatory duties. Specifications are regulated by the provisions in the Basic Law of the Federal Republic of Germany.

The legislative competence for the use of nuclear energy for peaceful purposes lies with the Federation. The further development of nuclear law is also a task of the Federation. The *Länder* will be involved in the procedure dependent on the subject matter. The AtG and the statutory ordinances based thereon are implemented by authorities of the Federation and the *Länder* with many tasks performed by the *Länder* on behalf of the Federation. With respect to the lawfulness and appropriateness of their action, the competent *Land* authorities are subject to the oversight by the federal government, which is represented in this area by the Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB).

The competent supervisory and licensing authorities report to the Federation on law enforcement on demand. The Federation has the right to require the submission of reports and documents and may issue binding directives to the *Land* authority in the individual case. The

Federation may assume the competence for the subject matter, i.e. the decision on the merits, by exercising its right to issue directives. The competence of execution, i.e. the implementation of the decision towards the applicant or licensee, remains with the competent *Land* authority.

In Germany, those concerned, e.g. applicants, licensees or also concerned third parties, may take legal action against decisions of the public administration, so-called administrative acts, before the administrative courts. Action is brought against the competent *Land* authority or the *Land* whose authority issued the administrative act. This is also applicable to the case that a *Land* decided pursuant to a directive of the Federation. Also in case of failure of the authority to act, those concerned may take legal action. Therefore, e.g., the operators may claim granting of licences applied for or the residents the issuance of an administrative order for cessation of operation of a nuclear installation.

B.2 Regulatory Bodies

BMUB

By organisational decree, the federal government specifies the Federal Ministry competent for nuclear safety and radiation protection. In 1986, this competence was assigned to the then newly founded Federal Ministry for the Environment, Nature Conservation and Nuclear Safety (BMU), since 2013 named Federal Ministry for the Environment, Nature Conservation, Building and Nuclear Safety (BMUB).

BAFA

The Federal Office of Economics and Export Control (BAFA) is responsible for licences/approvals involving transboundary transportation of radioactive material and withdrawal or revocation thereof, while supervision is the responsibility of the Federal Ministry of Finances (BMF) or the customs authorities designated by it.

BfS

The Federal Office for Radiation Protection (BfS) is a federal authority subject to supervision by the BMUB. The BfS has its own integrated supervisory unit (independent unit). It implements particular federal administrative tasks in the field of radiation protection including the construction and operation of federal facilities for the safekeeping and disposal of radioactive waste and the Asse II mine, the licensing of nuclear fuel storage outside of federal custody, where this does not constitute preparation or part of an activity subject to licensing under §§ 7 or 9 AtG, and the withdrawal or revocation of such licences and decisions concerning exceptions from the duty to construct a storage facility on the site of a commercial nuclear power plant or in close proximity to it when an application for decommissioning has been filed. It supports the BMUB on a technical and scientific level in these fields.

Third parties act on behalf the BfS. In 1979, the German Service Company for the Construction and Operation of Waste Repositories (DBE) was founded as such a third party according to the AtG. DBE is the main contractor of BfS with regard to construction, operation and closure of repositories (Konrad and Morsleben). In the case of the Asse II mine, the third party is the federal owned Asse GmbH.

BfE

Federal Office for Nuclear Waste Management (BfE) shall be responsible for plan approval and licensing according to § 9b AtG and their withdrawal, the granting of approvals under mining law and other permissions necessary for the construction, operation and decommissioning of federal facilities for the safekeeping and disposal after consultation of the responsible mining authority of the respective *Land*, the mining supervision pursuant to §§ 69 to 74 Federal Mining Act (BBergG) regarding federal facilities for the safekeeping and disposal and the granting of permits or concessions relating to water law during licensing procedures after consultation of the responsible mining authority of the respective *Land*.

Länder

On behalf of the federal government, the *Länder* carry out administrative duties (licensing and supervision) under nuclear and radiation protection law as delegated by the federal authorities. Thus, the *Länder* are the competent licensing authorities for all nuclear installations within their territory, except centralised and decentralised interim storage facilities for spent fuel. They supervise all nuclear facilities, repositories excluded. The *Länder* have to operate *Landessammelstellen* (Land collecting facilities), i.e. interim storage facilities for radioactive waste originating in particular from isotope applications in industry, research and development as well as medicine.

Advisory Commissions and Authorised Experts

The Reactor Safety Commission (RSK), the German Commission on Radiological Protection (SSK) and the Nuclear Waste Management Commission (ESK) advise the BMUB on all major issues concerning nuclear reactors, the nuclear fuel cycle and radiation protection. The regulatory authorities are assisted by technical safety organisations such as the Technical Inspection Agencies (TÜV) or the *Gesellschaft für Anlagen- und Reaktorsicherheit mbH* (GRS).

B.3 Hierarchy of the National Regulations

1. Basic Law

2. Formal federal law, in particular the Atomic Energy Act

3. Statutory ordinances

4. General administrative provisions

5. Announcements by the BMUB

6. Guidelines and recommendations of the RSK, SSK and ESK

7. Safety standards from KTA (Nuclear Safety Standards Commission)

8. Conventional technical standards

9. Other legal areas

C. Waste Management, Decommissioning and Spent Fuel Strategy and Current Practices & Technologies

C.1 Strategies and Current Practices

C.1.1 Waste with Negligible Heat Generation

Only solid (or solidified) radioactive waste will be accepted for disposal in deep geological formations; liquid and gaseous waste is excluded from acceptance. The controlled, safe disposal of radioactive waste therefore requires its conditioning. Conditioning comprises several stages, depending on the quality and nature of the primary waste. After targeted collection or grading (where necessary), the primary waste may first be pre-treated and then be processed either into interim products or directly into packages suitable for storage or disposal.

Conditioning of radioactive waste may take place in mobile or stationary facilities. Frequently used stationary waste conditioning facilities are decontamination and dismantling facilities, drying facilities, evaporator facilities, high-pressure compaction facilities, melting facilities and cementing facilities, which are located in Duisburg, Jülich, Karlsruhe, Krefeld, Rubenow near Greifswald and Braunschweig, and which are also available for the processing of waste from external waste producers. In addition to German facilities, facilities in other foreign countries are also utilised for waste conditioning.

Both centralised and decentralised storage facilities are available for the interim storage of radioactive waste with negligible heat generation from nuclear power plants and the nuclear industry. Central storage facilities currently available are: the Unterweser off-site storage building, the Biblis on-site temporary storage facility, the Ahaus transport cask storage facility (TBL-A), the Gorleben waste storage facility (ALG), the storage building of the power utilities at Mitterteich, the storage facilities of the Nuclear + Cargo Service GmbH (NCS) in Hanau, the ZLN in Rubenow, the Rossendorf storage facility (ZLR), and the storage facility of the central decontamination department Hauptabteilung Dekontaminationsbetriebe (HDB) in Karlsruhe. For waste generated from the use and handling of radioisotopes in research, industry and medicine, *Land* collecting facilities operated by the *Länder* are available for interim storage.

C.1.2 Heat Generating Waste

The reprocessing of the spent fuel delivered to France and the United Kingdom until 30 June 2005 has been completed. The operators of the nuclear power plants have provided evidence of the safe reuse of all plutonium generated by means of its reuse as MOX fuel in reactors, and the safe storage of all uranium. All other types of spent fuel remaining in Germany, and those will continue to be generated will be stored in an interim storage facility until their transportation to a repository. For this purpose, interim storage facilities have been

constructed at the sites of the nuclear power plants. The spent fuel is stored dry in casks licenced for transport and storage.

The spent fuel unloaded from the reactor core is first placed in fuel pools within the reactor building, generally for a period of five years. These pools allow the required decay of activity and heat generation until the fuel is placed in a storage cask for interim storage, and provides the operator with sufficient flexibility to operate the plant. The additional wet storage facility outside the reactor building at Obrigheim is an exceptional case. Spent fuel management facilities are: the wet and dry storage facilities at the reactor sites, the central storage facility "Zwischenlager Nord" (ZLN) at Rubenow near Greifswald, at Jülich for spent fuel from the high-temperature reactor AVR, at Gorleben (TBL-G) and at Ahaus (TBL-A), and the pilot conditioning plant at Gorleben (PKA).

Waste from the reprocessing of spent fuel from German power reactors is conditioned in France and the United Kingdom (e.g. vitrification of the high-level fission product solutions) and is then returned to Germany. Until the end of 2013, the TBL-G was provided for the storage of vitrified waste. For the return of the CSD-B waste from France and HAW waste from the United Kingdom still to be performed, the Site Selection Act (StandAG) requires the establishment of on-site storage facilities. According to AtG, the storage of nuclear fuel in nuclear facilities shall not exceed 40 years starting at the first emplacement of a cask. Waste from the reprocessing of German spent fuel in Germany was conditioned at Karlsruhe and is stored at ZLN.

C.2 Overview of Main Waste and Spent Fuel Issues

Repositories for waste with negligible heat generation are the Asse II mine (status: investigations for waste retrieval), the Morsleben repository (status: plan approval procedure for closure) and the Konrad repository (status: under construction).

The long-lasting dispute on the suitability of the Gorleben site to host a deep geological repository for high-level waste was the most serious obstacle on the way to finding a final solution for the management of high-level radioactive waste in Germany. In order to overcome the gridlocked situation and to achieve a consensus between the opposing parties and groups in German society, the German government decided to initiate a new site selection process for a repository in particular for heat-generating radioactive waste. The site selection act for this repository entered into force on 27 July 2013. The site selection procedure for a repository in particular for high-level radioactive waste in deep geological formations is to be concluded by 2031.

C.3 Research and Development Programs

Research on radioactive waste management in Germany follows two distinct categories:

1. Research necessary for the construction of German waste disposal repositories.
2. Research that is independent of preparatory work on repositories, and comes under the general objective of continually improving the protection of man and the environment.

Research projects are carried out mainly by the major research centres at Karlsruhe and Jülich, by the GRS, the Federal Institute for Geosciences and Natural Resources (BGR), the

DBE Technology, by universities and other bodies. The BfS supports the BMUB technically and by scientific research in its responsibility, among others, regarding the disposal of radioactive waste. The BfS co-operates with universities and non-university institutions in Germany and abroad. The GRS is the central scientific and technical expert organisation advising the federal government. The GRS performs scientific research in the field of nuclear safety and radiation protection, predominantly under federal contracts, including radioactive waste management and disposal, and supports the BMUB in technical issues.

The Federal Ministry of Economics and Technology (BMWi) also provides a budget for basic research of reactor safety. Two thirds of this budget are allocated to reactor safety research, within the framework of which about 100 research projects are performed in parallel on average. In the field of basic research on the disposal of radioactive waste, about 70 projects are performed in parallel using one third of the budget.

Moreover, the BGR, a subordinate authority of the BMWi, works on geoscientific issues for German repository projects. The BGR is generally financed from the BMWi budget. However, the waste producers refinance special tasks in the field of disposal.

C.4 Decommissioning and Dismantling

In Germany, 27 nuclear power and prototype reactors, 39 research reactors and critical assemblies, and 9 fuel cycle facilities have been permanently shut down. Out of these facilities, 3 of the power and prototype reactors, 26 of the research reactors and critical assemblies, and 7 of the fuel cycle facilities have already been dismantled. One other facility is now used for conventional purposes. Dismantling is in progress for other power reactors and restoration to "green-field conditions" is the plan in most cases. Deferred dismantling has also been selected for three research reactors, which are in safe enclosure mode as well. According to the respective licences, the concept for completing all decommissioning steps has to be submitted to the regulatory body, no licence for deferred dismantling will be granted without this.

C.5 Financing

The legal requirement is that prior to disposal, all steps of treatment of the radioactive waste are subjected to the polluter-pays principle. Disposal itself is the responsibility of the Federation. According to the AtG, the producers of radioactive residues are required to ensure its non-hazardous recycling or its orderly disposal as radioactive waste. This also means that, as a general principle, the producers are responsible for the conditioning and interim storage of the spent fuel and the radioactive waste. When delivering radioactive waste to a *Land* collecting facility, the ownership is transferred to this facility. In accordance with this principle, the state obligates the producers of waste by law to ensure the controlled and safe management of radioactive waste generated during the operation and decommissioning of nuclear facilities (such as nuclear power plants and research centres).

According to the AtG, anyone possessing radioactive waste must deliver it to a repository or to a *Land* collecting facility. The *Länder* are required to establish *Land* collecting facilities for their territory. Radioactive waste with negligible heat generation from research, medicine and industry is delivered to these facilities. The producers of radioactive waste arising from the

use of nuclear energy are responsible for its interim storage and conditioning. The Federation is required to establish radioactive waste repositories.

The polluter-pays principle also applies to the financing of spent fuel and radioactive waste management activities. The Federation reimburses the necessary expenses for the planning and construction of repositories to the parties obliged to deliver material by means of advance payments on contributions. The use of radioactive waste repositories and *Land* collecting facilities is financed or refinanced by costs (fees and expenses) that are payable by the party delivering radioactive waste.

D. Waste Classification, Waste and Spent Fuel Quantities (Inventory) and Disused Sources (Facilities)

Table I: Translation Matrix from German Classification Scheme to the IAEA GSG-1

Waste Class*	Distribution (%)				Disposal Routes	
	VLLW	LLW	ILW	HLW	for Stored	for Disposed
NHGW**	-	90	10	-	geological	geological
HGW (m^3)***	-	-	25	75	geological	
HGW (MTHM)****	-	-	-	100	geological	

** NHGW: Waste with Negligible Heat Generation, HGW: Heat Generating Waste*
*** The percentages in the matrix are based upon waste characteristics including radionuclide inventory and estimated annual arisings provided by the waste generators (Internal BfS-report ET-IB-52). The characteristics were compared with the limits for long-lived nuclides and heat generation specified for the IAEA's waste classification scheme.*
**** The ratio is based on the current amount of waste from reprocessing returned to Germany and other radioactive waste. The ratio will change in the future.*
***** Spent Fuel is HLW. Note: If SF assemblies will be conditioned (depending on the disposal concept) then it could generate ILW (e.g. structural parts). In conclusion, SF assemblies including HLW (spent fuel) and ILW (structural parts). The ratio refers only to spent fuel ("MTHM").*

Table II: Definitions for Processed and Unprocessed Waste

	As-generated waste	Processed for handling	Processed for storage	Processed for disposal
'Unprocessed' means:	X	X	X	
'Processed' means:				X

Table 1: Radioactive Waste in Storage (without spent fuel)

Route Waste Class	Processed (type)	Total Current Volume (m^3)	Estimated Disposal Volume (m^3)	Distribution (%)							Planned Disposal Route (if known)
				RO	FFE	RP	NA	DF	DC/ RE	ND	
Total of all Classes		137 901	154 367	-	-	-	-	-	-	100	geological
NHGW*	unprocessed	23 295	23 295	-	-	-	-	-	-	100	geological
NHGW**	processed	113 885	130 351	-	-	-	-	-	-	100	geological
HGW***	unprocessed	721	721	-	-	-	-	-	-	100	geological
HGW	processed	-	-	-	-	-	-	-	-	100	geological

** The unit of unprocessed waste is metric tons. A theoretical conversion factor of 1 ton per cubic meter is used to convert the unit of this value to cubic meter. Assumptions for the disposal volume is not reliable for unprocessed waste.*
*** The volume of processed waste as disposed is calculated as follows: Processed waste in Konrad container: 97,419 cubic meter; Processed waste in inner container: 16,466 cubic meter; A theoretical conversion factor of 2 is used to convert the volume of inner containers to a theoretical volume of Konrad containers. (factor range: approx. 1.6 to 4.4)*
**** Assumptions for the disposal volume is not reliable for unprocessed waste.*

Table 2: Radioactive Waste Disposed (as disposed volume)

Waste Class	Processed (not)	Total Volume (m^3)	Distribution (%)							
			RO	FFE	RP	NA	DF	DC / RE	ND	Disposal Route Used
Total of All Classes	-	83 753	-	-	-	-	-	-	-	-
NHGW (Morsleben)	-	36 753	64.80	0.43	0.12	15.46	0.00	17.76	1.43	geological
NHGW (Asse)	-	47 000	-	-	-	-	-	-	100	geological

Table 3: Spent fuel in Storage (MTHM)

Type	Current Amount (NPP & EDR*)	Current Amount (RR)
Total Spent Fuel Storage**	8 226	2
Wet storage (AR)	4 292	<< 1
Wet storage (AFR)	0	0
Dry storage (AR)	3 249	2
Dry storage (AFR)	685	0
Total spent fuel held in storage for other countries	0	<< 1***

** Experimental and demonstration reactors.*
*** AR = at reactor site (inside/outside reactor buildings), AFR = away from reactor site*
**** Amount of Spent Fuel will be returned to the country of origin.*

Table 4: Spent fuel sent for reprocessing (in the country or sent to another country) (MTHM)

Type	Current Amount (NPP & EDR)	Current Amount (RR)
Total amount Spent Fuel sent to Reprocessing (in your country)	192*	0
Total amount Spent Fuel sent to Reprocessing or Recycling (in another country)	6 658	**
Total amount of Spent Fuel received from another country for Reprocessing and Recycling	0	0
Total amount of Spent Fuel (MTHM) or radioactive waste (cubic metres) returned to country of origin for storage/disposal	** MTHM 544 m^3	0

** Reprocessing of German SF in Germany.*
*** No official data was published, which could be used for this report.*

E. Tabulation of Processing, Storage and Disposal Facilities, Capacities and Status

Table 5: Spent Fuel and Radioactive Waste Processing and Storage Facilities (Number)

Type	Planned	Construction	Commissioning	In Operation	Shutdown	Decommissioning*	Other	Total
SF Storage	1	0	0	34	0	0	0	35
SF Reprocessing and Recycling	0	0	0	0	0	1	0	1
SF Conditioning	0	0	0	0	0	0	1**	1
SF Disposal	0	0	0	0	0	0	0	0
Waste processing								
NHGW*	-	-	-	11	-	-	-	11
Waste storage								
NHGW*	-	-	-	52	-	-	-	52
Waste disposal								
NHGW	0	1	0	0	1	0	1	3

** Decommissioning includes safe enclosure, dismantling and "green field" condition (dismantling completed).*
*** Conditioning of spent fuel assemblies from NPP and RR; reloading of HLW glass canisters into packages suitable for disposal. According to stipulation of 11 June 2001: Use restricted to the repair of defect containers.*
**** Processing and storage facilities are partly at the same site or in the same building. Processing and storage facilities have to be constructed and operated by the facility operator according to the polluter-pays principle or as independent companies. Information about the planning, construction and decommissioning are not required for further planning activities for the federal bodies. (Note: HGW is stored with NHGW or Spent Fuel depending on the type of waste.)*

Table 6: Nuclear Power Plants, Research Reactors and Nuclear Fuel Cycle Facilities

Type	Planned	Construction	Commissioning	In Operation	Shutdown	Decommissioning*	Other	Total
Research reactors**	0	0	0	3	2	15	0	20
Nuclear Power reactors***	0	0	0	9	8	20	0	37
Spent Fuel Reprocessing and Recycling	0	0	0	0	0	1	0	1
Other (define)								
Fuel Fabrication and Enrichment	0	0	0	2	0	5	0	7
Experimental nuclear fuel cycle facilities	0	0	0	0	0	3	0	3

** Decommissioning includes safe enclosure, dismantling and "green field" (dismantling completed).*
*** Note: research reactors with medium or high power analogue to RRDB (1 $kW_{th} \leq Power \leq 1\ MW_{th}$; $Power \geq 1\ MW_{th}$).*
**** Includes NPP, experimental and demonstration reactors.*

F. Trends and future prospects

Table 7: Estimations for the Calculation

Forecast at	Significant points for estimations
2030	• Commissioning of Konrad repository not before 2022. (Assumption: Disposal of 10 000 m^3 per year starting from 2023.) • The radioactive waste from the Asse II mine is not taken into account, presently. • A repository for heat generating waste starts operation after 2050.
2050	• Commissioning of Konrad repository not before 2022. (Assumption: Disposal of 10 000 m^3 per year starting from 2023.) • The radioactive waste from the Asse II mine is not taken into account, presently. • A repository for heat generating waste starts operation after 2050.

Table 8: Trends and Future Prospects for Germans Waste Management Activities

Type	Current amount	Estimated disposal amount*	Current Disposal Capacity	Total forecast at 2030	Disposal Capacity at 2030	Total forecast at 2050	Disposal Capacity at 2050
SF Storage	8 226			10 500		10 500	
Wet storage (AR)	4 292						
Wet storage (AFR)	0						
Dry storage (AR)	3 249						
Dry storage (AFR)	685						
Total amount SF sent to Reprocessing and Recycling	6 850			6 850		6 850	
Total amount SF disposed	0		0	0	0	0	0
Waste in storage	137 901	154 367		171 500		21 500	
NHGW*	137 180	153 646		170 000		20 000	
HGW	721	721		1 500		1 500	
Waste disposal	83 753		0	164 000	223 000	364 000	23 000
NHGW**	83 753		0	164 000	223 000	364 000	23 000
HGW	0		0	0	0	0	0

** The forecast is based on the Figure D-15 of the Joint Convention Report 2015 combined with an assumed waste disposal of 10 000 m^3 per year. Other possible sources of radioactive waste arising's (e.g. waste from Asse II mine, uranium tails) are not taken into account, presently.*
*** The forecast does not consider a decrease of the disposed waste (83 753 m^3) due to retrieval activities.*

G. Sources of Data, Assumptions and References

Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management, Report of the Federal Republic of Germany for the Fifth Review Meeting in May 2015, Date: August 2014, available from WWW under: http://www.bmub.bund.de/fileadmin/Daten_BMU/Download_PDF/Atomenergie/jc_5_bericht_deutschland_en.pdf

Radioactive Waste Management Programmes in OECD/NEA Member States, Germany [2013], available from WWW under: https://www.oecd-nea.org/rwm/profiles/germany_profile.pdf

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