



**Country Waste Profile Report for
SWITZERLAND
Reporting Year: 2004**

*For guidance on reading Country Waste Profile Reports,
please refer to the following internet based document:*

<http://www-newmdb.iaea.org/help/profiles9/guide.pdf>

*For further information, please contact the Responsible Officer via e-mail:
NEWMDB@IAEA.org*

Waste Classification Schemes

Country: SWITZERLAND

Reporting Year: 2004

Waste Class Matrix: **IAEA Def.**

This country does use the IAEA Scheme: Yes

Description: The Agency's standard matrix

Waste Class Name	Distribution %		
	LILW-SL	LILW-LL	HLW
LILW-SL	100.0	0.0	0.0
LILW-LL	0.0	100.0	0.0
HLW	0.0	0.0	100.0

Comment **# 7198: Matrix use**

The IAEA standard waste classification system is not applied within official reports on radwaste in Switzerland. In the context of NEWMDB, it is, however, adopted as default to meet basic technical requirements for the definition of reporting groups within the database (i.e. need for waste matrix allocation) in case of reporting groups without any associated classification system (e.g. because there is no official reporting at all).

Waste Class Matrix: **Nagra**

Description: Classification scheme adopted by Nagra for provisional waste allocation to planned SMA and HAA/LMA repositories within Swiss disposal programme in 1985-2002 [kept in NEWMDB up to decisions on site/concept of new SMA repository]. Precise classification rules have not yet been established; the basic criterion is that the system of repositories and allocated wastes can be demonstrated to comply with the national overall long-term safety targets stated in HSK-R-21 (November 1993).

Waste Class Name	Distribution %		
	LILW-SL	LILW-LL	HLW
SMA	97.0	3.0	0.0
LMA	0.0	100.0	0.0
HAA	0.0	0.0	100.0

Comment **# 345: Waste class SMA**

SMA (low-level and short-lived intermediate level waste) shall be disposed of in a geologic repository, EL-SMA. This stream covers all LILW-SL (suitable for near-surface disposal) and might, from a technical point of view, also include part of LILW-LL (wastes slightly passing IAEA limit on specific alpha activity in LILW-SL). The volume of this LILW-LL fraction can be expected to be up to a few percent of the total SMA volume; the distribution factors given represent a rough estimate.

Comment **# 346: Waste class LMA**

LMA (long-lived intermediate-level waste) refers to the fraction of LILW-LL which cannot be disposed of in an EL-SMA.

Comment **# 347: Waste class HAA**

HAA (high-level waste) denote canisters with vitrified HLW from reprocessing spent Swiss fuel in France and Great Britain, being returned to Switzerland.

Comment **# 360: Waste class BE**

Not included. IAEA has explicitly excluded BE (spent fuel) from reporting in NEWMDB.

Waste Classification Schemes

Country: SWITZERLAND

Reporting Year: 2004

Waste Class Matrix: **NEA-SD**

Description:

Classification scheme used by IAEA to report on Swiss waste disposed of by OECD/NEA sea dumping campaigns in the Atlantic Ocean between 1969 and 1982 (IAEA-TECDOC-1105 [August 1999], Annex A.11).

Waste Class Name	Distribution %		
	LILW-SL	LILW-LL	HLW
MD	100.0	0.0	0.0
MDLC	85.0	15.0	0.0

Comment **# 361: Waste class MD**

MD (200-l metal drums), nominal volume 0.21 m³, include solidified (generally: cemented) waste. They are assumed to be LILW-SL.

Comment **# 362: Waste class MDLC**

MDLC (metal drums lined with concrete) represent 200-l drums with cemented waste, grouted into a concrete container (nominal volume 0.98 m³) before shipment. Overpacking purposes are shielding (gamma emitters) and enhanced safety (alpha emitters, including Ra-226). Volume distribution over LILW-SL and LILW-LL is estimated on the basis of the alpha activities processed (AGNEB-165 [28.04.1983], table 1), the numbers of dumped MDLC (IAEA-TECDOC-1105 [1999], Annex A.11), and the assumption of a 60% use of the IAEA limits on specific activities for Ra-226 and other alpha emitters (AGNEB-165 [28.04.1983], p.4).

Waste Classification Schemes

Country: SWITZERLAND

Reporting Year: 2004

Waste Class Matrix: **HSK**

Description:

Classification pattern to adopt HSK's actual practice in public reporting on radwaste accumulated at sites under HSK's supervision (see: HSK Supervisor Report 2004, Appendix A, Tables 8 and 9) within the framework of NEWMDB.

Waste Class Name	Distribution %		
	LILW-SL	LILW-LL	HLW
KKB	100.0	0.0	0.0
KKG	98.8	1.2	0.0
KKL	100.0	0.0	0.0
KKM	99.9	0.1	0.0
PSI(HSK)	93.0	7.0	0.0
ZWILAG-u	96.0	4.0	0.0
ZWILAG-p	100.0	0.0	0.0
RPW-LILW	70.0	30.0	0.0
RPW-HLW	0.0	0.0	100.0

Comment **# 363: Class Definitions**

a) RPW-HLW and RPW-LILW: conditioned reprocessing wastes (vitrified HLW and others, respectively) returned to Switzerland by foreign reprocessors (Cogema, BNFL).

b) KKB, KKG, KKL, KKM: all wastes other than reprocessing wastes (generally: site-owned NPP operation wastes) stored at the pertinent NPP (KKB, KKG, KKL, KKM).

c) PSI(HSK): all federal wastes resulting from nuclear applications in medicine, industry and research - stored at facilities under HSK's supervision.

d) ZWILAG: all wastes other than reprocessing wastes stored at ZWILAG site (basically NPP operation/decommissioning waste) - provisionally a distinction between unprocessed and processed waste (affixes "-u" and "-p", respectively) is included to account for actual differences when applying IAEA's waste classification.

Comment **# 365: Volume Conversion to IAEA Classification System**

Volume data for waste classes to be reported have been tentatively split into volumes for HLW, LILW-SL and LILW-LL, resulting in the factors (percentage values) outlined above as matrix elements, based on the technical criteria defined in IAEA Safety Guide 111-G-1.1 (1994), Table II.

The following methods were applied:

(a) assessment from the Swiss database system on radioactive materials (ISRAM) referring to package nuclide inventories at key date [standard] - using the criterion >4000 Bq alpha/g of package to separate LILW-LL from LILW-SL -, or

(b) best estimate [backup].

Except for reporting class "RPW-HLW", the conversion factors must be considered as non-static, just reflecting an assessment related to a key date.

Definition of «unprocessed waste» and «processed waste»:

Is not defined

Groups Overview

Country: SWITZERLAND

Reporting Year: 2004

Reporting Group:	BAG
Inventory Reporting Date:	December 2004
Waste Matrix Used:	IAEA Def.
Description:	Wastes from Nuclear Applications in Medicine, Industry and Research Held under BAG's Supervision

Site Name	Facility Name	Facilities Defined		
CERN	WMF@CERN	processing	storage	
PSI(BAG)	WMF@PSI-W	processing	storage	

Comment # 7226: General

The Federal Office of Health (BAG) is the supervisory body for radwaste management activities at sites which do not fall under nuclear regulation in a legal sense [note: those are supervised by the Nuclear Safety Inspectorate (HSK)], dealing with a broad variety of waste producers in the field of nuclear applications in medicine, industry and research.

Waste arisings destined to disposal in a nuclear repository are

(a) collected on behalf of BAG (possibly after pretreatment, subject to fee) and routed to a national delivery point (PSI-East), where they are conditioned and stored under HSK's supervision (see: Reporting Group "HSK") - standard procedure for small producers, option for large nuclear research centres (CERN, PSI outside HSK's supervision), or

(b) storage after/without treatment or conditioning at site - standard procedure for large-sized decommissioning wastes of large nuclear research centres.

BAG has no legal obligation for public reporting on wastes falling under (b) [note: category (a) is included under reporting for PSI(HSK)]. Hence, information given is restricted to some qualitative issues.

Note, however, that registration of wastes of category (b) into the database system for Swiss radioactive wastes (ISRAM) has been accepted by PSI and CERN and is being implemented.

Reporting Group:	Foreign
Inventory Reporting Date:	December 2004
Waste Matrix Used:	IAEA Def.
Description:	Swiss wastes stored outside Switzerland

Site Name	Facility Name	Facilities Defined		
ForeignRP	BNFL	processing		
	Cogema	processing		

Comment # 7229: General

All Swiss NPP's have current service contracts with BNFL (United Kingdom) and COGEMA (France) for the reprocessing of a qualified amount of spent fuel. These are subject to a return-of-waste clause which is exercised by both reprocessors.

Reprocessing wastes to be returned include, in both cases, vitrified HLW and a spectrum of LILW types which have been or are to be submitted to acceptance procedures in Switzerland (as well as in other countries concerned).

Known are the fuel deliveries (fuel assembly types, fuel masses, burnups) from [not reported in NEWMDB] and the waste returns to Switzerland [reported under site "ZWILAG"], up to the key date.

The overall amount of waste expected to be returned to Switzerland is known but not finalized, hence volumes are not reported.

Groups Overview

Country: SWITZERLAND

Reporting Year: 2004

Reporting Group:	HSK
Inventory Reporting Date:	December 2004
Waste Matrix Used:	HSK
Description:	Wastes from Swiss nuclear power industry, research reactors and other nuclear installations (including the national collection centre for Federal wastes at PSI-East) held under HSK's supervision

Site Name	Facility Name	Facilities Defined		
KKB	WMF@KKB	processing	storage	
KKG	WMF@KKG	processing	storage	
KKL	WMF@KKL	processing	storage	
KKM	WMF@KKM	processing	storage	
PSI(HSK)	WMF@PSI-E	processing	storage	
ZWILAG	WMF@ZWILAG	processing	storage	

Comment **# 373: Reference Document for Reporting to NEWMDB**

HSK Supervision Report 2004, Appendix A, Tables 8 [KKB, KKG, KKL, KKM, PSI(HSK)] and 9 [ZWILAG].

Comment **# 374: Reporting on NPP sites**

For NPP sites (KKB, KKG, KKL, KKM), the Reference Document provides data on total volumes for unprocessed and processed waste stored on site, without discrimination of individual local storage units. Under this constraint, (a) information on local waste management facilities is given collectively under "WMF@KKX", (b) waste data are presented for each site in terms of a generic "overall" storage unit (named "all@KKX"), (c) the start of both treatment/conditioning and storage operations is generically set equal to the first year of commercial operation of the NPP, and (d) the type of the "overall" storage unit is defined as "various" due to effective or potential variations within the set of locally available storage units [note: conditioned and solid unconditioned wastes are usually stored in buildings or bunkers, liquids or sludges awaiting treatment in tanks].

Comment **# 378: Reporting on PSI(HSK)**

As for NPP sites, the Reference Document provides data on total volumes for unprocessed and processed waste stored at site PSI(HSK) - physically being a part of PSI-East (PSI-E) site - , not discriminating between individual local storage units. Under this constraint, (a) information on local waste management facilities is given collectively under "WMF@PSI-E", (b) waste data are presented for each site in terms of a generic "overall" storage unit (named "all@PSI-E"), (c) the start of both treatment/conditioning and storage operations is generically set equal to the first year of operation of PSI-East, and (d) the type of the "overall" storage unit is defined as "various" due to effective or potential variations within the set of locally available storage units [note: processed and solid unprocessed wastes are usually stored in buildings or bunkers, liquids or sludges awaiting treatment in tanks].

Comment **# 7224: Reporting on ZWILAG**

In the case of ZWILAG, the central Swiss waste management facility owned by the 4 Swiss NPPs, the Reference Document includes information on allocation of identified wastes to distinct storage units. For the scope of NEWMDB, information on ZWILAG waste management facilities is summarized under "WMF@ZWILAG", the active storage units (Buildings H, M and further summarized under "others") being identified for comprehensiveness. Quantitative waste data in the Reference Report are not necessarily given in volume units and there is no explicit distinction between processed and unprocessed waste, thus requiring some data evaluation preceding any input to NEWMDB.

Comment **# 7225: Reporting on Storage Capacities**

Individual statements on site-specific storage capacities are omitted. As NPPs can use the large storage capacity of ZWILAG, problems with NPP waste storage are not expected to occur. At PSI-East, a need for increased capacity could be solved in time by adding further storage buildings or by use of ZWILAG storage capacity.

Comment **# 9796: Waste Volume Data 2004-12-31**

The waste volume data presented in the Reference Document have been partially revised before publication in the Joint Convention Report 2004. For coherency at IAEA level, waste volume data in NEWMDB refer to the latter document.

Groups Overview

Country: SWITZERLAND

Reporting Year: 2004

Reporting Group:	Nagra
Inventory Reporting Date:	December 2004
Waste Matrix Used:	Nagra
Description:	Swiss Repository Projects

Site Name	Facility Name	Facilities Defined		
EL-HAA/LMA	DU-HAA			disposal
	DU-LMA			disposal
EL-SMA	DU-SMA			disposal

Comment **# 7287: General**

Nagra, the National Cooperative for the Disposal of Radioactive Waste, has been founded in 1972 as a private organization in order to manage the task of finding and planning Swiss radwaste repositories. Shareholders are the Swiss nuclear power industry and the Swiss Confederation (on account of waste arising from nuclear applications in medicine, industry and research).

Due to the actual state of Nagra's programmes, reported information will frequently include generic statements.

Reporting Group:	NEA-SD
Inventory Reporting Date:	December 2004
Waste Matrix Used:	NEA-SD
Description:	OECD/NEA sea dumping

Site Name	Facility Name	Facilities Defined		
N-Atlantic	Sea Floor			disposal

Comment **# 372: Waste volumes**

See IAEA-TECDOC-1105 (August 1999), Annex A.11.

Site (Structure) : CERN

Country: SWITZERLAND

Reporting Year: 2004

Full Name: Centre Européen pour la Recherche Nucléaire

Description:

Official Website:

License Holder(s): "Not licensed as a nuclear facility" / Organisation Européenne pour la Recherche Nucléaire

Comment # 7294: CERN Wastes

CERN is located at the Swiss/French border, extending into both countries, and has the status a international research facility. Radwastes arise from operation and decommissioning of accelerators and experimental equipment. There is a general understanding that these wastes will be routed to disposal within the two host countries, but final decisions have not been made.

A small fraction of "Swiss" wastes, e.g. incinerable waste, is traditionally routed to the national delivery point (PSI-East) for treatment, conditioning and subsequent storage.

The remaining wastes, e.g. large-sized decommissioning waste, are stacked, partially after pretreatment, at dedicated CERN buildings, awaiting free release or conditioning. A project aiming at characterizing and inventorying pertinent wastes according to HSK standards has been launched in 2003, in order to meet potential requirements for subsequent disposal in a Swiss repository and to evaluate optimized conditioning methods.

Potential waste arisings for disposal in Switzerland are estimated to be in the order of 10,000 -20,000 m3 (conditioned) LILW-SL.

Waste management facilities that are located at this site:

Site (Structure) : CERN

Country: SWITZERLAND

Reporting Year: 2004

Facility:	WMF@CERN
Description:	CERN Waste Management Facilities

Storage part of facility WMF@CERN

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
LILW-SL	Yes	Yes
LILW-LL	No	No
HLW	No	No

List SRS?	No
List UMMT?	No

Capacity:	
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Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
all@CERN	building	1970	No	No	No	No

Processing part of facility WMF@CERN

The following shows processing status for waste classes and SRS.

Waste Class	Actual	Planned
LILW-SL	No	No
LILW-LL	No	No
HLW	No	No

Type:	Treatment
Year opened:	1970

Site (Data) : CERN

Stock of waste as at December 2004

Country: SWITZERLAND

Reporting Year: 2004

Site Name: CERN

Full Name: Centre Européen pour la Recherche Nucléaire

Inventory Reporting Date: December 2004 Waste Matrix Used: IAEA Def.

Comment **# 7294: CERN Wastes**

CERN is located at the Swiss/French border, extending into both countries, and has the status a international research facility. Radwastes arise from operation and decommissioning of accelerators and experimental equipment. There is a general understanding that these wastes will be routed to disposal within the two host countries, but final decisions have not been made.

A small fraction of "Swiss" wastes, e.g. incinerable waste, is traditionally routed to the national delivery point (PSI-East) for treatment, conditioning and subsequent storage.

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Potential waste arisings for disposal in Switzerland are estimated to be in the order of 10,000 -20,000 m3 (conditioned) LILW-SL.

Processing - Treatment method(s)

Method	Status			
	Planned	R&D program	Current practice method use over the last 5 years	Past Practice
Compaction	N	N	Same	N
Size Reduction	N	N	Same	N

Site (Structure) : PSI(BAG)

Country: SWITZERLAND

Reporting Year: 2004

Full Name: Paul-Scherrer-Institut (Facilities under BAG supervision)

Description:

Official Website:

License Holder(s): "Not licensed as a nuclear facility" / Paul-Scherrer-Institut

Comment **# 7296: PSI(BAG) Wastes**

Wastes arising from decommissioning of accelerators and experimental equipment at PSI-West are, normally, not routed to the national delivery point at PSI-East. Instead, they are conditioned by grouting in large concrete containers which are used afterwards as shielding elements at site.

Due to their functionality, such waste-containing shielding elements are not (yet) waste in a legal sense, and any reference to "storage units" at PSI-West must be related to that aspect.

Expected overall volume for conditioned waste is around 10,000 m3 LILW-SL.

Waste management facilities that are located at this site:

Site (Structure) : PSI(BAG)

Country: SWITZERLAND

Reporting Year: 2004

Facility:	WMF@PSI-W
Description:	Waste Management Facilities at PSI-West

Storage part of facility WMF@PSI-W

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
LILW-SL	Yes	Yes
LILW-LL	No	No
HLW	No	No

List SRS?	No
List UMMT?	No

Capacity:	
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Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
all@PSI-W	building	1980	No	No	No	No

Processing part of facility WMF@PSI-W

The following shows processing status for waste classes and SRS.

Waste Class	Actual	Planned
LILW-SL	No	No
LILW-LL	No	No
HLW	No	No

Type:	Treatment, Conditioning
Year opened:	1980

Site (Data) : PSI(BAG)

Stock of waste as at December 2004

Country: SWITZERLAND

Reporting Year: 2004

Site Name: PSI(BAG)

Full Name: Paul-Scherrer-Institut (Facilities under BAG supervision)

Inventory Reporting Date: December 2004 Waste Matrix Used: IAEA Def.

Comment **# 7296: PSI(BAG) Wastes**

Wastes arising from decommissioning of accelerators and experimental equipment at PSI-West are, normally, not routed to the national delivery point at PSI-East. Instead, they are conditioned by grouting in large concrete containers which are used afterwards as shielding elements at site.

Due to their functionality, such waste-containing shielding elements are not (yet) waste in a legal sense, and any reference to "storage units" at PSI-West must be related to that aspect.

Expected overall volume for conditioned waste is around 10,000 m3 LILW-SL.

Processing - Treatment method(s)

Method	Status			
	Planned	R&D program	Current practice method use over the last 5 years	Past Practice
Size Reduction	N	N	Same	N

Processing - Conditioning method(s)

Method	Status			
	Planned	R&D program	Current practice method use over the last 5 years	Past Practice
Cementation	N	N	Same	N

Site (Structure) : ForeignRP

Country: SWITZERLAND

Reporting Year: 2004

Full Name: Foreign Reprocessing Plants

Description:

Official Website:

License Holder(s):

Waste management facilities that are located at this site:

Facility:	BNFL	
Description:	BNFL, Sellafield, U.K.	
Processing part of facility BNFL		
The following shows processing status for waste classes and SRS.		
Waste Class	Actual	Planned
LILW-SL	Yes	Yes
LILW-LL	Yes	Yes
HLW	Yes	Yes
Type:	Treatment, Conditioning	
Year opened:	0	

Site (Structure) : ForeignRP

Country: SWITZERLAND

Reporting Year: 2004

Facility:	Cogema												
Description:	Cogema, Cap de la Hague, France												
Processing part of facility Cogema													
The following shows processing status for waste classes and SRS.													
<table border="1"><thead><tr><th>Waste Class</th><th>Actual</th><th>Planned</th></tr></thead><tbody><tr><td>LILW-SL</td><td>No</td><td>No</td></tr><tr><td>LILW-LL</td><td>Yes</td><td>Yes</td></tr><tr><td>HLW</td><td>Yes</td><td>Yes</td></tr></tbody></table>	Waste Class	Actual	Planned	LILW-SL	No	No	LILW-LL	Yes	Yes	HLW	Yes	Yes	
Waste Class	Actual	Planned											
LILW-SL	No	No											
LILW-LL	Yes	Yes											
HLW	Yes	Yes											
Type:	Treatment, Conditioning												
Year opened:	0												

Site (Data) : ForeignRP

Stock of waste as at December 2004

Country: SWITZERLAND

Reporting Year: 2004

Site Name: ForeignRP

Full Name: Foreign Reprocessing Plants

Inventory Reporting Date: December 2004

Waste Matrix Used: IAEA Def.

Processing - Treatment method(s)

Method	Status			
	Planned	R&D program	Current practice method use over the last 5 years	Past Practice
Calcination	N	N	Same	N
Chemical Precipitation	N	N	Same	N
Compaction	N	N	Increase	N
Size Reduction	N	N	Same	N
Wastewater Treatment	N	N	Same	N

Processing - Conditioning method(s)

Method	Status			
	Planned	R&D program	Current practice method use over the last 5 years	Past Practice
Bituminization	N	N	Decrease	N
Cementation	N	N	Same	N
Encapsulation	N	N	Same	N
Grouting	N	N	Decrease	N
Vitrification	N	N	Same	N

Site (Structure) : KKB

Country: SWITZERLAND

Reporting Year: 2004

Full Name: Kernkraftwerk Beznau

Description:

Official Website:

License Holder(s): Nordostschweizerische Kraftwerke AG, CH-5400 Baden

Waste management facilities that are located at this site:

Facility:	WMF@KKB
Description:	Waste Management Facilities at KKB

Storage part of facility WMF@KKB

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
KKB	Yes	Yes
KKG	No	No
KKL	No	No
KKM	No	No
PSI(HSK)	No	No
ZWILAG-u	No	No
ZWILAG-p	No	No
RPW-LILW	No	No
RPW-HLW	No	No

List SRS?	No
List UMMT?	No

Capacity:	
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Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
all@KKB	various	1969	No	No	No	No

Site (Structure) : KKB

Country: SWITZERLAND

Reporting Year: 2004

Processing part of facility WMF@KKB

The following shows processing status for waste classes and SRS.

Waste Class	Actual	Planned
KKB	No	No
KKG	No	No
KKL	No	No
KKM	No	No
PSI(HSK)	No	No
ZWILAG-u	No	No
ZWILAG-p	No	No
RPW-LILW	No	No
RPW-HLW	No	No

Type:	Treatment, Conditioning
Year opened:	1969

Site (Data) : KKB

Stock of waste as at December 2004

Country: SWITZERLAND

Reporting Year: 2004

Site Name: KKB

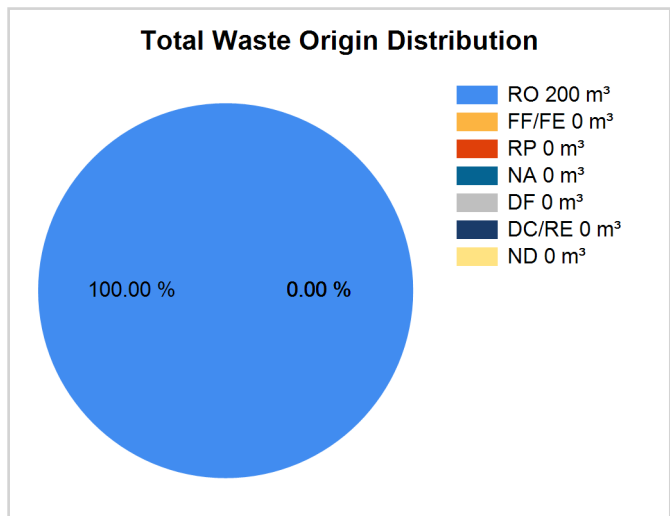
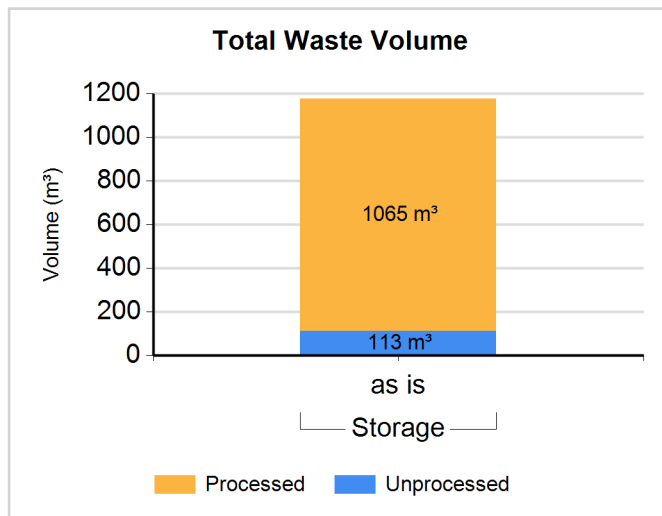
Full Name: Kernkraftwerk Beznau

Inventory Reporting Date: December 2004

Waste Matrix Used: HSK

Waste Inventory

Est=distribution is an estimate, Proc.=Is the waste processed (Yes/No)? RO=Reactor Operations, FF/FE=Fuel Fabrication/Fuel Enrichment, RP=Reprocessing, NA=Nuclear Applications,DF=Defence, DC/RE=Decommissioning/Remediation, ND=Not Determined



Note: where volume "as dispo" is provided, volume "as is" is used in the graph instead.

Waste Class: KKB

Waste Class Name	Location / Facility	Proc.	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
KKB	Storage / WMF@KKB	N	N	113.000	113.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
KKB	Storage / WMF@KKB	Y	N	1065.000	1065.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00

Processing - Treatment method(s)

Method	Status			
	Planned	R&D program	Current practice method use over the last 5 years	Past Practice
Chemical Precipitation	N	N	Same	N
Decontamination	N	N	Same	N
Evaporation	N	N		Y

Site (Data) : KKB

Stock of waste as at December 2004

Country: SWITZERLAND

Reporting Year: 2004

Processing - Conditioning method(s)

Method	Status			
	Planned	R&D program	Current practice method use over the last 5 years	Past Practice
Cementation	N	N	Same	N
Polymerization	N	N	Same	N

Site (Structure) : KKG

Country: SWITZERLAND

Reporting Year: 2004

Full Name: Kernkraftwerk Gösgen

Description:

Official Website:

License Holder(s): Kernkraftwerk Gösgen-Däniken AG, Däniken

Waste management facilities that are located at this site:

Facility:	WMF@KKG
Description:	Waste Management Facilities at KKG

Storage part of facility WMF@KKG

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
KKB	No	No
KKG	Yes	Yes
KKL	No	No
KKM	No	No
PSI(HSK)	No	No
ZWILAG-u	No	No
ZWILAG-p	No	No
RPW-LILW	No	No
RPW-HLW	No	No

List SRS?	No
List UMMT?	No

Capacity:	
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Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
all@KKG	various	1979	No	No	No	No

Site (Structure) : KKG

Country: SWITZERLAND

Reporting Year: 2004

Processing part of facility WMF@KKG

The following shows processing status for waste classes and SRS.

Waste Class	Actual	Planned
KKB	No	No
KKG	No	No
KKL	No	No
KKM	No	No
PSI(HSK)	No	No
ZWILAG-u	No	No
ZWILAG-p	No	No
RPW-LILW	No	No
RPW-HLW	No	No

Type:	Treatment, Conditioning
Year opened:	1979

Site (Data) : KKG

Stock of waste as at December 2004

Country: SWITZERLAND

Reporting Year: 2004

Site Name: KKG

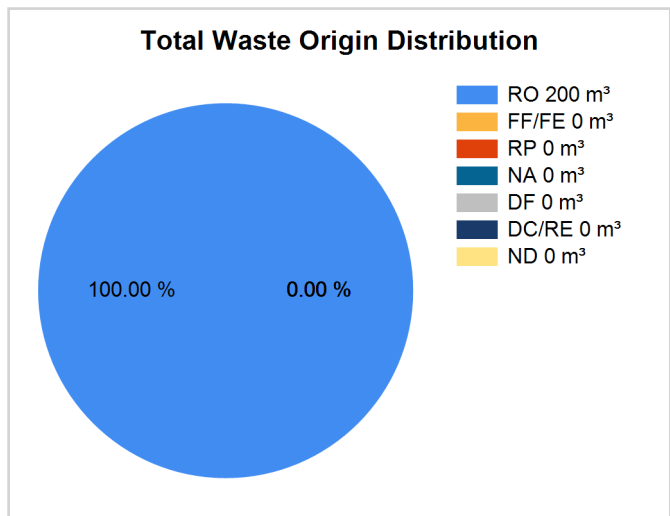
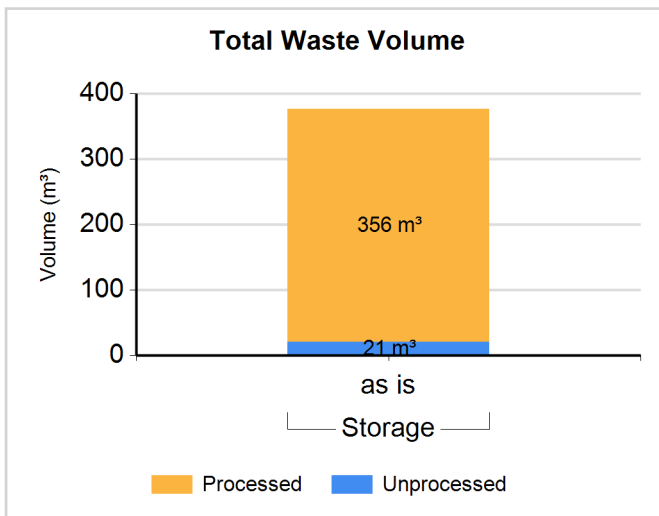
Full Name: Kernkraftwerk Gösgen

Inventory Reporting Date: December 2004

Waste Matrix Used: HSK

Waste Inventory

Est=distribution is an estimate, Proc.=Is the waste processed (Yes/No)? RO=Reactor Operations, FF/FE=Fuel Fabrication/Fuel Enrichment, RP=Reprocessing, NA=Nuclear Applications,DF=Defence, DC/RE=Decommissioning/Remediation, ND=Not Determined



Note: where volume "as dispo" is provided, volume "as is" is used in the graph instead.

Waste Class: KKG

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
KKG	Storage / WMF@KKG	N	N	21.000	21.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
KKG	Storage / WMF@KKG	Y	N	356.000	356.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00

Processing - Treatment method(s)

Method	Status			
	Planned	R&D program	Current practice method use over the last 5 years	Past Practice
Calcination	N	N	Same	N
Decontamination	N	N	Same	N
Evaporation	N	N	Same	N

Site (Data) : KKG

Stock of waste as at December 2004

Country: SWITZERLAND

Reporting Year: 2004

Processing - Conditioning method(s)

Method	Status			
	Planned	R&D program	Current practice method use over the last 5 years	Past Practice
Bituminization	N	N	Same	N
Cementation	N	N	Same	N

Site (Structure) : KKL

Country: SWITZERLAND

Reporting Year: 2004

Full Name: Kernkraftwerk Leibstadt

Description:

Official Website:

License Holder(s): Kernkraftwerk Leibstadt AG

Waste management facilities that are located at this site:

Facility:	WMF@KKL
Description:	Waste Management Facilities at KKL

Storage part of facility WMF@KKL

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
KKB	No	No
KKG	No	No
KKL	Yes	Yes
KKM	No	No
PSI(HSK)	No	No
ZWILAG-u	No	No
ZWILAG-p	No	No
RPW-LILW	No	No
RPW-HLW	No	No

List SRS?	No
List UMMT?	No

Capacity:	
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Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
all@KKL	various	1984	No	No	No	No

Site (Structure) : KKL

Country: SWITZERLAND

Reporting Year: 2004

Processing part of facility WMF@KKL

The following shows processing status for waste classes and SRS.

Waste Class	Actual	Planned
KKB	No	No
KKG	No	No
KKL	No	No
KKM	No	No
PSI(HSK)	No	No
ZWILAG-u	No	No
ZWILAG-p	No	No
RPW-LILW	No	No
RPW-HLW	No	No

Type:	Treatment, Conditioning
Year opened:	1984

Site (Data) : KKL

Stock of waste as at December 2004

Country: SWITZERLAND

Reporting Year: 2004

Site Name: KKL

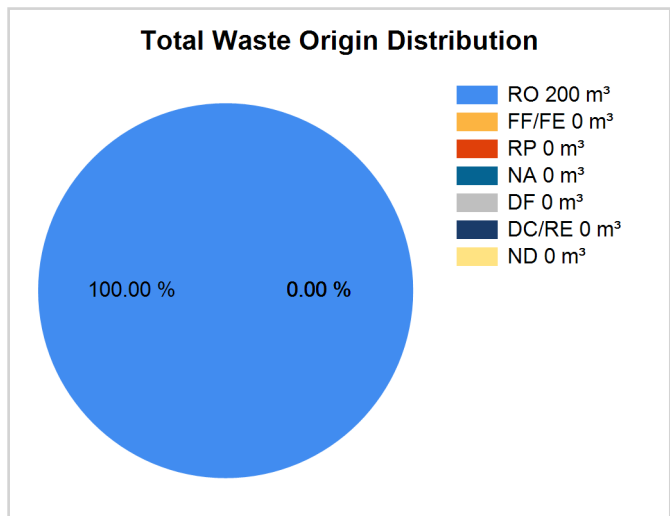
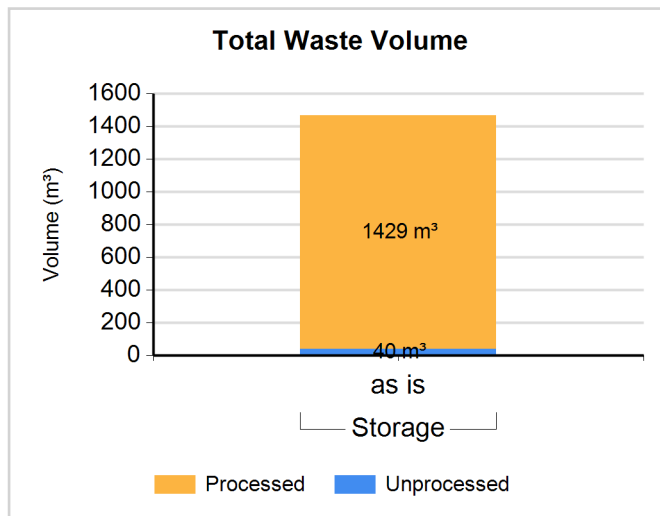
Full Name: Kernkraftwerk Leibstadt

Inventory Reporting Date: December 2004

Waste Matrix Used: HSK

Waste Inventory

Est=distribution is an estimate, Proc.=Is the waste processed (Yes/No)? RO=Reactor Operations, FF/FE=Fuel Fabrication/Fuel Enrichment, RP=Reprocessing, NA=Nuclear Applications,DF=Defence, DC/RE=Decommissioning/Remediation, ND=Not Determined



Note: where volume "as dispo" is provided, volume "as is" is used in the graph instead.

Waste Class: KKL

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
KKL	Storage / WMF@KKL	N	N	40.000	40.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
KKL	Storage / WMF@KKL	Y	N	1429.000	1429.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00

Processing - Treatment method(s)

Method	Status			
	Planned	R&D program	Current practice method use over the last 5 years	Past Practice
Decontamination	N	N	Same	N
Evaporation	N	N	Same	N
Size Reduction	N	N	Same	N
Super Compaction	N	N		Y

Comment # 7281: Supercompaction

Between the late 80's and 2001, KKL was temporarily hosting a mobile supercompactor for treatment of compactable mixed NPP waste, as a joint venture of all Swiss NPPs. In future, such treatment would be performed at ZWILAG.

Site (Data) : KKL

Stock of waste as at December 2004

Country: SWITZERLAND

Reporting Year: 2004

Processing - Conditioning method(s)

Method	Status			
	Planned	R&D program	Current practice method use over the last 5 years	Past Practice
Cementation	N	N	Same	N

Site (Structure) : KKM

Country: SWITZERLAND

Reporting Year: 2004

Full Name: Kernkraftwerk Mühleberg

Description:

Official Website:

License Holder(s): BKW FMB Energie AG

Waste management facilities that are located at this site:

Facility:	WMF@KKM
Description:	Waste Management Facilities at KKM

Storage part of facility WMF@KKM

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
KKB	No	No
KKG	No	No
KKL	No	No
KKM	Yes	Yes
PSI(HSK)	No	No
ZWILAG-u	No	No
ZWILAG-p	No	No
RPW-LILW	No	No
RPW-HLW	No	No

List SRS?	No
List UMMT?	No

Capacity:	
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Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
all@KKM	various	1971	No	No	No	No

Site (Structure) : KKM

Country: SWITZERLAND

Reporting Year: 2004

Processing part of facility **WMF@KKM**

The following shows processing status for waste classes and SRS.

Waste Class	Actual	Planned
KKB	No	No
KKG	No	No
KKL	No	No
KKM	No	No
PSI(HSK)	No	No
ZWILAG-u	No	No
ZWILAG-p	No	No
RPW-LILW	No	No
RPW-HLW	No	No

Type:	Treatment, Conditioning
Year opened:	1971

Site (Data) : KKM

Stock of waste as at December 2004

Country: SWITZERLAND

Reporting Year: 2004

Site Name: KKM

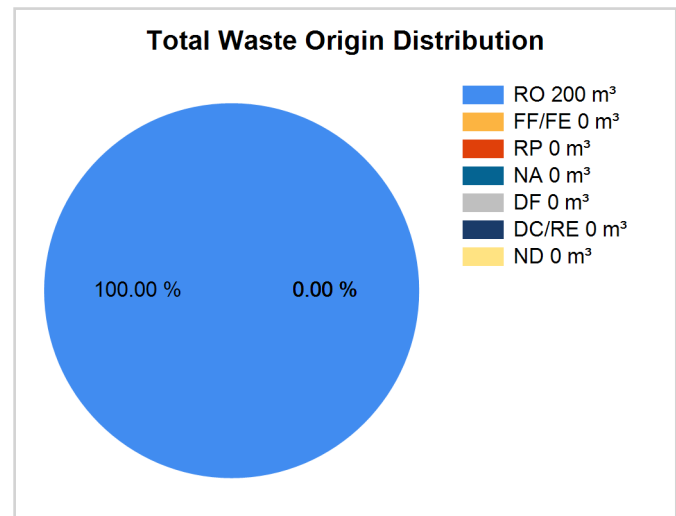
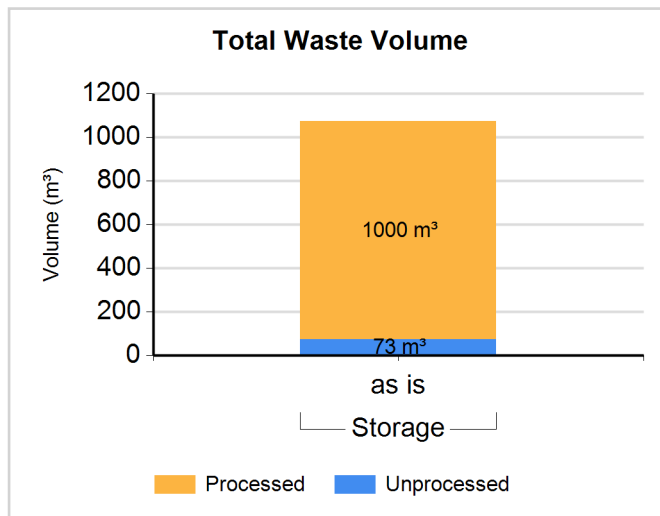
Full Name: Kernkraftwerk Mühleberg

Inventory Reporting Date: December 2004

Waste Matrix Used: HSK

Waste Inventory

Est=distribution is an estimate, Proc.=Is the waste processed (Yes/No)? RO=Reactor Operations, FF/FE=Fuel Fabrication/Fuel Enrichment, RP=Reprocessing, NA=Nuclear Applications,DF=Defence, DC/RE=Decommissioning/Remediation, ND=Not Determined



Note: where volume "as dispo" is provided, volume "as is" is used in the graph instead.

Waste Class: KKM

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
KKM	Storage / WMF@KKM	N	N	73.000	73.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
KKM	Storage / WMF@KKM	Y	N	1000.000	1000.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00

Processing - Treatment method(s)

Method	Status			
	Planned	R&D program	Current practice method use over the last 5 years	Past Practice
Decontamination	N	N	Same	N
Size Reduction	N	N	Same	N
Thermal Treatment (non incineration)	N	N	Same	N

Processing - Conditioning method(s)

Method	Status			
	Planned	R&D program	Current practice method use over the last 5 years	Past Practice
Cementation	N	N	Same	N

Site (Data) : KKM

Stock of waste as at December 2004

Country: SWITZERLAND

Reporting Year: 2004

Site (Structure) : PSI(HSK)

Country: SWITZERLAND

Reporting Year: 2004

Full Name: Paul-Scherrer-Institut (Facilities under HSK supervision)

Description:

Official Website:

License Holder(s): Paul-Scherrer-Institut

Waste management facilities that are located at this site:

Facility:	WMF@PSI-E
Description:	Waste Management Facilities at PSI-East (Nuclear Facilities under HSK supervision)

Storage part of facility WMF@PSI-E

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
KKB	No	No
KKG	No	No
KKL	No	No
KKM	No	No
PSI(HSK)	Yes	Yes
ZWILAG-u	No	No
ZWILAG-p	No	No
RPW-LILW	No	No
RPW-HLW	No	No

List SRS?	No
List UMMT?	No

Capacity:	
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Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
all@PSI-E	various	1967	No	No	No	No

Site (Structure) : PSI(HSK)

Country: SWITZERLAND

Reporting Year: 2004

Processing part of facility **WMF@PSI-E**

The following shows processing status for waste classes and SRS.

Waste Class	Actual	Planned
KKB	No	No
KKG	No	No
KKL	No	No
KKM	No	No
PSI(HSK)	No	No
ZWILAG-u	No	No
ZWILAG-p	No	No
RPW-LILW	No	No
RPW-HLW	No	No

Type:	Treatment, Conditioning
Year opened:	1967

Site (Data) : PSI(HSK)

Stock of waste as at December 2004

Country: SWITZERLAND

Reporting Year: 2004

Site Name: PSI(HSK)

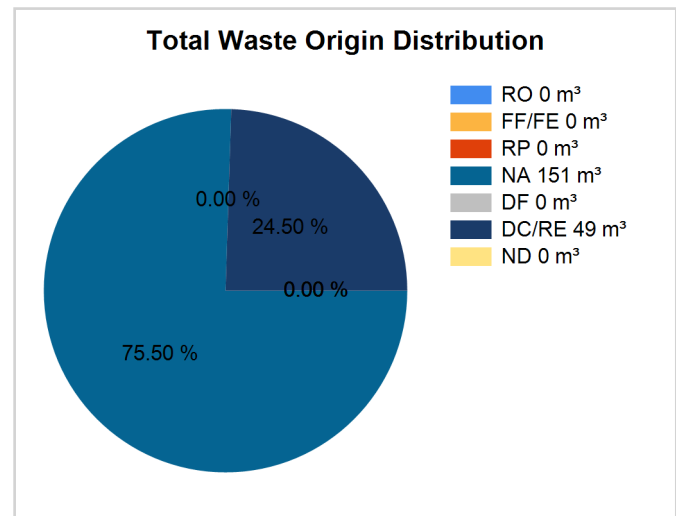
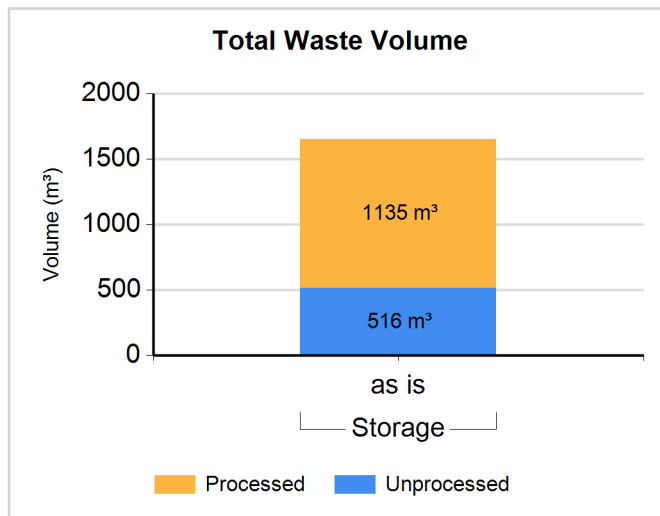
Full Name: Paul-Scherrer-Institut (Facilities under HSK supervision)

Inventory Reporting Date: December 2004

Waste Matrix Used: HSK

Waste Inventory

Est=distribution is an estimate, Proc.=Is the waste processed (Yes/No)? RO=Reactor Operations, FF/FE=Fuel Fabrication/Fuel Enrichment, RP=Reprocessing, NA=Nuclear Applications,DF=Defence, DC/RE=Decommissioning/Remediation, ND=Not Determined



Note: where volume "as dispo" is provided, volume "as is" is used in the graph instead.

Waste Class: PSI(HSK)

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
PSI(HSK)	Storage / WMF@PSI-E	N	Y	516.000	516.000	0.00	0.00	0.00	63.00	0.00	37.00	0.00
PSI(HSK)	Storage / WMF@PSI-E	Y	Y	1135.000	1135.000	0.00	0.00	0.00	88.00	0.00	12.00	0.00

Processing - Treatment method(s)

Method	Status			
	Planned	R&D program	Current practice method use over the last 5 years	Past Practice
Compaction	N	N	Same	N
Decontamination	N	N	Same	N
Incineration	N	N		Y
Metal Melting	N	N	Same	N
Size Reduction	N	N	Same	N

Site (Data) : PSI(HSK)

Stock of waste as at December 2004

Country: SWITZERLAND

Reporting Year: 2004

Processing - Conditioning method(s)

Method	Status			
	Planned	R&D program	Current practice method use over the last 5 years	Past Practice
Cementation	N	N	Same	N
Encapsulation	N	N	Same	N
Grouting	N	N	Same	N

Site (Structure) : ZWILAG

Country: SWITZERLAND

Reporting Year: 2004

Full Name: Zentrales Zwischenlager Würenlingen

Description:

Official Website:

License Holder(s): Zwischenlager Würenlingen AG

Waste management facilities that are located at this site:

Facility:	WMF@ZWILAG
Description:	Waste Management Facilities at ZWILAG

Storage part of facility WMF@ZWILAG

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
KKB	No	No
KKG	No	No
KKL	No	No
KKM	No	No
PSI(HSK)	No	No
ZWILAG-u	Yes	Yes
ZWILAG-p	Yes	Yes
RPW-LILW	No	Yes
RPW-HLW	Yes	Yes

List SRS?	No
List UMMT?	No

Capacity:	
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Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
Lager H	building	2001	No	No	No	No
Lager M	bunker	2001	No	No	No	No
others	building	2001	No	No	No	No

Site (Structure) : ZWILAG

Country: SWITZERLAND

Reporting Year: 2004

Processing part of facility **WMF@ZWILAG**

The following shows processing status for waste classes and SRS.

Waste Class	Actual	Planned
KKB	No	No
KKG	No	No
KKL	No	No
KKM	No	No
PSI(HSK)	No	No
ZWILAG-u	Yes	Yes
ZWILAG-p	No	No
RPW-LILW	No	No
RPW-HLW	No	No

Type:	Treatment, Conditioning
Year opened:	2001

Site (Data) : ZWILAG

Stock of waste as at December 2004

Country: SWITZERLAND

Reporting Year: 2004

Site Name: ZWILAG

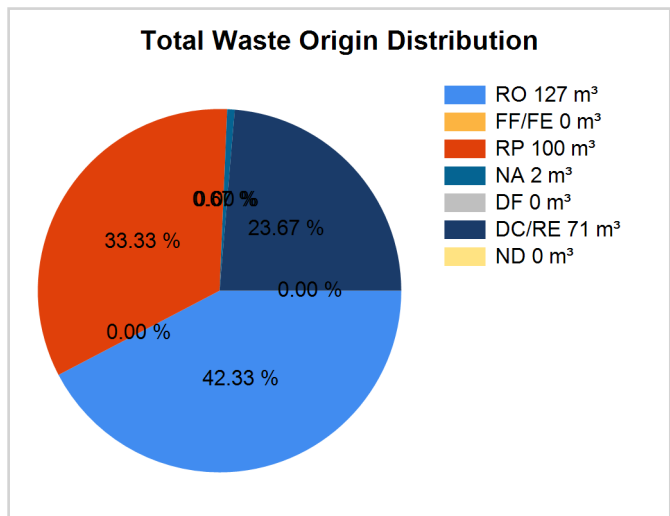
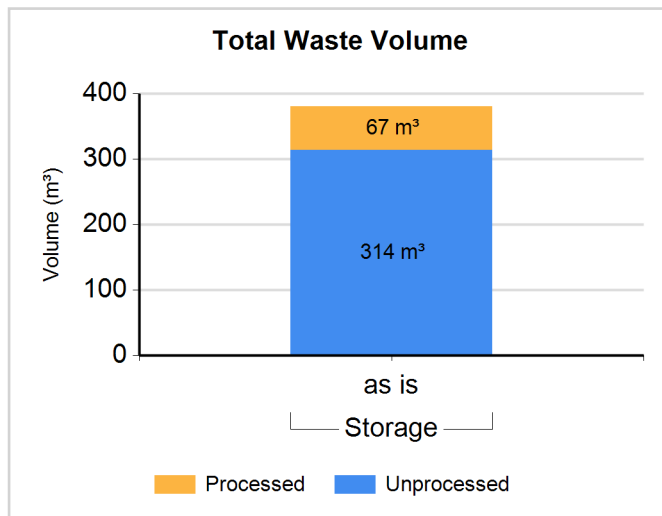
Full Name: Zentrales Zwischenlager Würenlingen

Inventory Reporting Date: December 2004

Waste Matrix Used: HSK

Waste Inventory

Est=distribution is an estimate, Proc.=Is the waste processed (Yes/No)? RO=Reactor Operations, FF/FE=Fuel Fabrication/Fuel Enrichment, RP=Reprocessing, NA=Nuclear Applications,DF=Defence, DC/RE=Decommissioning/Remediation, ND=Not Determined



Note: where volume "as dispo" is provided, volume "as is" is used in the graph instead.

Waste Class: ZWILAG-u

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
ZWILAG-u	Storage / WMF@ZWILAG	N	Y	314.000	314.000	58.00	0.00	0.00	2.00	0.00	40.00	0.00

Waste Class: ZWILAG-p

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
ZWILAG-p	Storage / WMF@ZWILAG	Y	Y	42.000	42.000	69.00	0.00	0.00	0.00	0.00	31.00	0.00

Waste Class: RPW-HLW

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
RPW-HLW	Storage / WMF@ZWILAG	Y	N	25.000	25.000	0.00	0.00	100.00	0.00	0.00	0.00	0.00

Site (Data) : ZWILAG

Stock of waste as at December 2004

Country: SWITZERLAND

Reporting Year: 2004

Processing - Treatment method(s)

Method	Status			
	Planned	R&D program	Current practice method use over the last 5 years	Past Practice
Decontamination	N	N	Increase	N
Incineration	N	N	Increase	N
Metal Melting	N	N	Increase	N
Super Compaction	N	Y		N

Processing - Conditioning method(s)

Method	Status			
	Planned	R&D program	Current practice method use over the last 5 years	Past Practice
Casting (of metal and slag)	N	N	Increase	N
Cementation	N	Y		N
Grouting	N	Y		N

Comment **# 9721: ZWILAG Plasma Arc Incinerator/Melter**

Facility designed to incinerate/decompose/melt mixed waste (organics, metals, inorganics) fed in drums by very high temperature treatment.. Primary process residues are molten slag (non-metallic residues immersed into molten glass) and molten metals. These are casted into 145 l moulds. After waste product solidification by cooling, the moulds are overpacked in 200 l drums.

Active commissioning of the facility has started in November 2004.

Site (Structure) : EL-HAA/LMA

Country: SWITZERLAND

Reporting Year: 2004

Full Name: Swiss repository project for high-level and long-lived intermediate-level waste

Description:

Official Website:

License Holder(s):

Comment # 355: Programme status EL-HAA/LMA (12/2004)

Feasibility demonstration for an EL-HAA/LMA in 1985 (Projekt Gewaehr 85), based on deep geologic disposal in crystalline host rock in northern Switzerland, led to follow-up project for completion of disposal feasibility demonstration. Subsequent extensive field investigations in areas of promising rock formations (crystalline and, as an extension, Opalinus clay in the northern part of the Canton of Zurich) lead to a supplementary feasibility study (Entsorgungsnachweis) which has been submitted to authorities in 2002, referring to Opalinus clay as candidate host rock; decision of Swiss Government is expected for 2006. Other options (multinational repository, crystalline host rock) are not to be ruled out yet.

Comment # 7285: Information on Disposal Unit Capacities

Capacity numbers given are rough GUIDELINES FOR SITE SELECTION PURPOSES and refer to wastes at emplacement into disposal areas (i.e. they account for overpacking into disposal containers within repository site facilities). A reserve volume for spent fuel is included in the capacity planned for HAA disposal units. With the basic scenario, Swiss repositories defined below shall accommodate all Swiss radwaste (i.e. of NPP and any other origin) arisings as nowadays stored or being accumulated in future, until all of the Swiss NPP actually in operation are decommissioned. Note that these capacity data represent by definition an upper envelope for waste arisings which have been defined for safety assessment reports and engineering studies, relying on distinct scenarios. Excavation will be adjusted at construction time to meet effective needs.

Comment # 9718: Conditioning Facilities Envisaged for EL-HAA/LMA

According to Nagra's actual plans, delivered waste units shall be conditioned / overpacked after reception at the site, before transport to disposal units:

- (a) LMA units (small size packages): to be emplaced/grouted into standardized LMA disposal containers;
- (b) canisters with vitrified HLW from reprocessing in transport & storage containers (TSC) : unloading from TSC, emplacement into disposal containers (cast iron), welding of the HAA disposal container.

[note: if direct disposal of spent fuel is to be planned/performed:

- (c) spent fuel in TSC: transfer from TSC into BE disposal container, sealing of BE disposal container.]

Waste management facilities that are located at this site:

Facility:	DU-HAA
Description:	Disposal Unit(s) for HAA

Site (Structure) : EL-HAA/LMA

Country: SWITZERLAND

Reporting Year: 2004

Disposal part of facility

The following shows disposal status for waste classes and SRS.

Waste Class	Actual	Planned
SMA	No	No
LMA	No	No
HAA	No	No

List SRS?	#Error
List UMMT?	#Error

Type:	
Facility is modular?	#Error

Depth (m):		Host medium:	
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Phase Name	Start Year	End Year	Estimate
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Site (Structure) : EL-HAA/LMA

Country: SWITZERLAND

Reporting Year: 2004

Facility:	DU-LMA
Description:	Disposal Unit(s) for LMA

Disposal part of facility

The following shows disposal status for waste classes and SRS.

Waste Class	Actual	Planned
SMA	No	No
LMA	No	No
HAA	No	No

List SRS?	#Error
List UMMT?	#Error
Type:	
Facility is modular?	#Error

Depth (m):		Host medium:	
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Phase Name	Start Year	End Year	Estimate
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Site (Structure) : EL-SMA

Country: SWITZERLAND

Reporting Year: 2004

Full Name: Swiss repository project for low-level and short-lived intermediate-level waste

Description:

Official Website:

License Holder(s):

Comment **# 353: Project status EL-SMA (12/2004)**

Feasibility demonstration for an EL-SMA repository (Projekt Gewähr 1985) accepted by authorities in 1988. After a site selection procedure, Wellenberg, Canton of Nidwalden, has been selected as EL-SMA site in 1993 (application for general license to Confederation in 1994). Apart from licensing according to Atomic Law, a cantonal mining concession is required in Nidwalden for repository-bound excavation; this concession is subject to public referendum. Mining concession has been disapproved twice by the people of Nidwalden - 1995 (for exploratory drift and repository) and 2002 (for exploratory drift only) - despite the fact that the repository concept had been modified since 1995 to meet primary public concerns (extended monitoring, enhanced retrievability). After the 2002 vote, Wellenberg site has been abandoned by the potential operator.

In 2003, the Federal Government implemented a working group to provide input to the process of site selection; first results are expected late 2004/2005. In parallel, Nagra started scientifically-based re-evaluation of siting options for an EL-SMA. Nagra will be able to present a proposal on how to proceed only when the boundary conditions for the site selection process have been clarified by the Federal Government. This is not expected to happen before 2006.

Comment **# 354: Project characteristics EL-SMA (12/2004)**

EL-SMA facility description must be considered as being open. The total capacity envisaged remains, however, unaltered.

Comment **# 7286: Information on Disposal Unit Capacity**

The capacity numbers given are rough GUIDELINES FOR SITE SELECTION PURPOSES and refer to wastes at emplacement into disposal areas (i.e. they account for overpacking into disposal containers within repository site facilities). With the basic scenario, Swiss repositories defined below shall accommodate all Swiss radwaste (i.e. of NPP and any other origin) arisings as nowadays stored or being accumulated in future, until all of the Swiss NPP actually in operation are decommissioned. Note that these capacity data represent by definition an upper envelope for waste arisings which have been defined for safety assessment reports and engineering studies, relying on distinct scenarios. Excavation will be adjusted at construction time to meet effective needs.

Comment **# 9719: Conditioning Facilities Envisaged for EL-SMA**

After reception at the site, delivered waste units shall be conditioned / overpacked before transport to disposal units:

(a) Small-size packages: to be emplaced/grouted into standardized SMA disposal containers.

Waste management facilities that are located at this site:

Site (Structure) : EL-SMA

Country: SWITZERLAND

Reporting Year: 2004

Facility:	DU-SMA
Description:	Disposal Unit(s) at EL-SMA

Disposal part of facility

The following shows disposal status for waste classes and SRS.

Waste Class	Actual	Planned
SMA	No	No
LMA	No	No
HAA	No	No

List SRS?	#Error
List UMMT?	#Error

Type:	
Facility is modular?	#Error

Depth (m):		Host medium:	
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Phase Name	Start Year	End Year	Estimate
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Site (Structure) : N-Atlantic

Country: SWITZERLAND

Reporting Year: 2004

Full Name: North Atlantic Ocean

Description:

Official Website:

License Holder(s):

Comment **# 371: Background**

Switzerland has participated in the OECD/NEA Atlantic Ocean dumping programme between 1969 and 1982. IAEA-TECDOC-1105 and documents referenced there provide a summary on history, safety assessments and wastes processed. In 1983, dumping operations with Swiss waste have been stopped, and Swiss Government formally renounced on continued use of this disposal option in 1992.

Waste management facilities that are located at this site:

Facility:	Sea Floor		
Description:			
Disposal part of facility		Sea Floor	
The following shows disposal status for waste classes and SRS.			
Waste Class	Actual	Planned	
MD	Yes	No	
MDLC	Yes	No	
List SRS?	No		
List UMMT?	No		
Type:	sea dumping (sea bed disposal)		
Facility is modular?	No		
Capacity existing (m3):	2308	Capacity planned (m3):	0
Depth (m):	3600-4750	Host medium:	sedimentary (sand)
Phase Name	Start Year	End Year	Estimate
operation	1969	1982	False

Site (Data) : N-Atlantic

Stock of waste as at December 2004

Country: SWITZERLAND

Reporting Year: 2004

Site Name: N-Atlantic

Full Name: North Atlantic Ocean

Inventory Reporting Date: December 2004

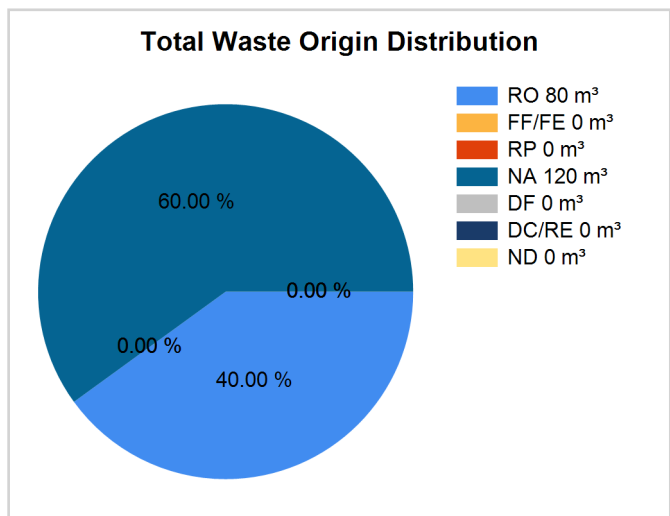
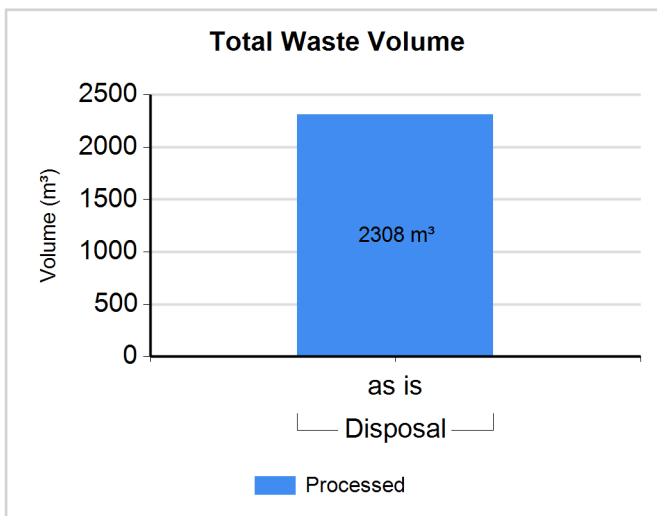
Waste Matrix Used: NEA-SD

Comment # 371: Background

Switzerland has participated in the OECD/NEA Atlantic Ocean dumping programme between 1969 and 1982. IAEA-TECDOC-1105 and documents referenced there provide a summary on history, safety assessments and wastes processed. In 1983, dumping operations with Swiss waste have been stopped, and Swiss Government formally renounced on continued use of this disposal option in 1992.

Waste Inventory

Est=distribution is an estimate, Proc.=Is the waste processed (Yes/No)? RO=Reactor Operations, FF/FE=Fuel Fabrication/Fuel Enrichment, RP=Reprocessing, NA=Nuclear Applications,DF=Defence, DC/RE=Decommissioning/Remediation, ND=Not Determined



Note: where volume "as dispo" is provided, volume "as is" is used in the graph instead.

Waste Class: MD

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
MD	Disposal	Y	Y	1367.000	1367.000	40.00	0.00	0.00	60.00	0.00	0.00	0.00

Comment # 6678: The additional characteristics of the waste

Processed: solid (non-dispersible)

Waste Class: MDLC

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
MDLC	Disposal	Y	Y	941.000	941.000	40.00	0.00	0.00	60.00	0.00	0.00	0.00

Comment # 6679: The additional characteristics of the waste

Processed: solid (non-dispersible)

Regulators

Country: SWITZERLAND

Reporting Year: 2004

Name:	HSK
Full Name:	Swiss Federal Nuclear Safety Inspectorate
Divison:	Division for Transport and Waste Management Safety (SITE)
City or Town:	CH-5232 Villigen-HSK
Main Website:	

Comment **# 6658: Domain of Regulation / Supervision**

Radwaste management at sites / facilities licensed under the Nuclear Energy Act (KEG).

Name:	BAG
Full Name:	Swiss Federal Office for Public Health
Divison:	Radiation Protection
City or Town:	CH-3003 Berne
Main Website:	

Comment **# 7233: Domain of Regulation / Supervision**

Radwaste management at sites / facilities not licensed under the Nuclear Energy Act (KEG).

Regulations / Laws

Country: SWITZERLAND

Reporting Year: 2004

Name:	KEG		
Title or Name:	Nuclear Energy Act		
Reference Number:	732.1		
Date Promulgated or Proclaimed:	3/21/2003	Law	

Comment **# 7193: Status**

Date of entry into force: 2005-02-01, with repeal of the Atomic Energy Act (AtG) of 1959-12-23 and the Federal Decree on the Atomic Energy Act (AtG/BB) of 1978-10-06.

Name:	KEV		
Title or Name:	Nuclear Energy Ordinance		
Reference Number:	732.11		
Date Promulgated or Proclaimed:	12/10/2004	Law	

Comment **# 7194: Status**

Date of entry into force: 2005-02-01.

Name:	StSG		
Title or Name:	Radiological Protection Act		
Reference Number:	814.50		
Date Promulgated or Proclaimed:	3/22/1991	Law	

Name:	StSV		
Title or Name:	Radiological Protection Ordinance		
Reference Number:	814.501		
Date Promulgated or Proclaimed:	6/22/1994	Law	

Name:	StiFV		
Title or Name:	Federal Ordinance on the Decommissioning Fund for Nuclear Facilities		
Reference Number:	732.013		
Date Promulgated or Proclaimed:	12/5/1983	Law	

Regulations / Laws

Country: SWITZERLAND

Reporting Year: 2004

Name:	VHV		
Title or Name:	Ordinance on Preparatory Measures		
Reference Number:	732.012		
Date Promulgated or Proclaimed:	11/27/1989	Law	

Name:	VARA		
Title or Name:	Ordinance on the Collection of Radioactive Waste (BAG supervision area)		
Reference Number:	814.557		
Date Promulgated or Proclaimed:	9/3/2002	Law	

Name:	R-14		
Title or Name:	Requirements for Conditioning of Radioactive Waste		
Reference Number:	HSK-R-14		
Date Promulgated or Proclaimed:	3/1/2004	Regulation	

Name:	R-21		
Title or Name:	Protection Objectives for the Disposal of Radioactive Waste		
Reference Number:	HSK-R-21		
Date Promulgated or Proclaimed:	11/1/1993	Regulation	

Name:	EntsFV		
Title or Name:	Federal Ordinance on the Waste Management Fund for Nuclear Power Plants		
Reference Number:	732.014		
Date Promulgated or Proclaimed:	3/6/2000	Law	

Name:	LDC		
Title or Name:	London Convention on the Prevention of Marine Pollution by Dumping of Waste and Other Matter		
Reference Number:			
Date Promulgated or Proclaimed:	12/29/1972	Regulation	

Regulations / Laws

Country: SWITZERLAND

Reporting Year: 2004

Name:	R-52		
Title or Name:	Transport and Storage Casks (T/S-Casks) for Interim Storage		
Reference Number:	HSK-R-52		
Date Promulgated or Proclaimed:	7/1/2003	Regulation	

Name:	R-13		
Title or Name:	Free Release of Materials and Areas from Controlled Zones		
Reference Number:	HSK-R-13		
Date Promulgated or Proclaimed:	2/1/2002	Regulation	

Name:	GStSV		
Title or Name:	Federal Ordinance on Fees in the Area of Radiation Protection		
Reference Number:	814.56		
Date Promulgated or Proclaimed:	3/24/1999	Law	

Name:	R-29		
Title or Name:	Requirements for Interim Storage of Radioactive Waste		
Reference Number:	HSK-R-29		
Date Promulgated or Proclaimed:	3/1/2004	Regulation	

Milestones

Country: SWITZERLAND

Reporting Year: 2004

Start Year or Reference Year:	2003	End Year:	
Description of Milestone:			
Follow-up of EL-SMA: Due to abandonment of the Wellenberg site, a programme was launched by Nagra in 2003 for (a) re-evaluation of candidate host rocks/sites from scratch and (b) reconsideration of alternative repository concepts for SMA waste. Conclusions shall be reported in 2005 to the Federal Government, as requested for comprehensiveness in view of the decisions envisaged for 2006 concerning acceptance of the feasibility demonstration for EL-HAA/LMA.			
Start Year or Reference Year:	2002	End Year:	
Description of Milestone:			
EL-HAA/LMA: Completion of feasibility study (Project "Entsorgungsnachweis"), based on Opalinus clay host rock formation in Northern Switzerland (Zürcher Weinland). Report was submitted by Nagra to the Federal Government by end of 2002. At the same time, Nagra asked the Federal Government to agree to Nagra's proposal to focus future investigations for the Swiss SF/HLW/ILW programme on the Opalinus clay and the candidate siting area of the Zürcher Weinland. The decision by the Federal Government is expected in 2006.			
Start Year or Reference Year:	1996	End Year:	2003
Description of Milestone:			
EL-SMA: Despite decisions on a stepwise concession approach (first only exploratory drift, then repository), project modifications (monitoring, retrievability) and definition of exclusion criteria: negative outcome of a new cantonal vote on mining concession for an exploratory drift in September 2002. Wellenberg site is abandoned by the potential operator company GNW, which is formally disbanded in 2003 after completion of recultivation and settlement of further obligations.			
Start Year or Reference Year:	1993	End Year:	1995
Description of Milestone:			
EL-SMA: Wellenberg identified as candidate site after a 12 years' site evaluation procedure (1993), agreement with local community (1994), applications for general licence (federal) and mining concession (cantonal) for exploratory drift and repository in 1994, mining concession being rejected by public referendum in June 1995.			
Start Year or Reference Year:	1990	End Year:	1992
Description of Milestone:			
Implementation of a standardized, decentralized computer-based database system for Swiss radioactive waste (ISRAM), which enables characterization and book-keeping for all conditioned and most of unconditioned waste packages.			
Start Year or Reference Year:	1988	End Year:	2004
Description of Milestone:			
ZWILAG: Planning, construction and commissioning of a central storage facility for spent fuel, HLW and any other type of waste, with conditioning facilities and plasma arc incinerator/melter.			

Milestones

Country: SWITZERLAND

Reporting Year: 2004

Start Year or Reference Year:	1985	End Year:	1988
Description of Milestone:			
"Project Gewaehr 85": Feasibility demonstration for disposal of all waste categories in Switzerland submitted by Nagra in 1985. Decision of Federal Government in June 1988: demonstration for EL-SMA accepted, for EL-HAA/LMA (crystalline host rock) safety concept and engineering feasibility accepted, but siting feasibility yet to be demonstrated.			
Start Year or Reference Year:	1982	End Year:	1982
Description of Milestone:			
End of OECD/NEA sea dumping activities for LILW in the Northern Atlantic Ocean.			
Start Year or Reference Year:	1978	End Year:	1978
Description of Milestone:			
Concept report on geological disposal in Switzerland (Nagra)			

Policies

Country: SWITZERLAND

Reporting Year: 2004

National Systems

Policy		(Yes;Partially;No)
Q14	Has your Country implemented a national policy for radioactive waste management?	Yes
Strategies		(Yes;Partially;No)
Q15	Has your country developed strategies to implement a national policy?	Yes
Requirements		(Yes;Partially;No)
Q17	identified the parties involved in the different steps of radioactive waste management	Yes
Q18	specified a rational set of safety, radiological and environmental protection objectives	Yes
Q19	implemented a mechanism to identify existing and anticipated radioactive wastes	Yes
Q20	implemented controls over radioactive waste generation	Yes
Q21	identified available methods and facilities to process, store and dispose of radioactive waste on an appropriate time-scale	Yes
Q22	taken into account interdependencies among all steps in radioactive waste generation and management	Yes
Q23	implemented appropriate research and development to support the operational and regulatory needs	Yes
Q24	implemented a funding structure and the allocation of resources that are essential for radioactive waste management	Yes
Q25	implemented formal mechanisms for disseminating information to the public and for public consultation	Yes
Responsibilities		(Complete;Incomplete)
Q28	establish and implement a legal framework for the management of radioactive waste	Complete
Q29	establish or designate a regulatory body that has the responsibility for carrying out the regulatory function with regard to safety and the protection of human health and the environment.	Complete
Q30	define the responsibilities of waste generators and operators of waste management facilities	Complete
Q31	provide for adequate resources	Complete
Q33	enforce compliance with regulatory requirements	Complete
Q34	implement the licensing process	Complete
Q35	advise the government	Complete
Q37	identify an acceptable destination for the radioactive waste	Complete
Q114	comply with legal requirements	Complete

Policies

Country: SWITZERLAND

Reporting Year: 2004

Activities		(Yes;Partially;No)
Q43	perform safety and environmental impact assessments for radioactive waste management facilities	Yes
Q44	ensure adequate radiation protection for workers, the general public and the environment	Yes
Q45	ensure suitable staff, equipment, facilities, training and operating procedures are available to perform the safe radioactive waste management steps	Yes
Q46	establish and implement a quality assurance programme for the radioactive waste generated or its processing, storage and disposal	Yes
Q47	establish and keep records of appropriate information regarding the generation, processing, storage and disposal of radioactive waste, including an inventory of radioactive waste	Yes
Q48	provide surveillance and control of activities involving radioactive waste as required by the regulatory body	Yes
Q49	collect, analyze and, as appropriate, share operational experience to ensure continued safety improvements in radioactive waste management	Yes
Q50	conduct or otherwise ensure appropriate research and development to support operational needs in radioactive waste management	Yes
Clearance		(Yes;No)
Q128	Does your country have "clearly defined clearance levels based on radiological criteria, with policy statements that material below those levels can be recycled or disposed of with non-radioactive wastes"?	Yes
Q129	Has your country ever used a "case-by-case" approach to clearing radioactive wastes (excluding spent/disused sealed radioactive sources)?	Yes
Q130	Has your country ever used clearance levels to dispose of, reuse or recycle radioactive waste as non-radioactive waste or as a non-radioactive resource (excluding spent/disused sealed radioactive sources)?	No

Policies

Country: SWITZERLAND

Reporting Year: 2004

Disposal Facilities

Licensing		(Yes - All;Yes - Some;No)
Q53	Environmental Assessment (EA)	Yes - All
Q54	Environmental Impact Statement (EIS)	Yes - All
Q55	Performance Assessment (PA)	Yes - All
Q56	Quality Assurance (QA)	Yes - All
Q57	Safety Assessment (SA)	Yes - All
Q59	If Quality Assurance is part of your Country's current, waste disposal facility licensing policy, does the QA Program conform to international standards (such as the ISO9000 series)?	Yes - Some

Operation		(Yes - All;Yes - Some;No)
Q60	Does your Country have formal, documented waste acceptance criteria for its operating or proposed disposal facilities?	Yes - All

Comment # 226: Disposal facility

No disposal facility in operation. Preliminary WAC have been issued by Nagra for planning and assessment purposes.

Post-Closure		(Yes;No)
Q61	Does your Country have any written policies to address the maintenance of records that describe the design, location and inventory of waste disposal facilities?	Yes
Q62	If the answer to the previous question was YES, does your Country have any policies, laws or regulations that prescribe what records are to be maintained?	Yes
Q63	Does your Country have any written policies to address active institutional controls or passive institutional controls, such as monitoring or access restrictions?	Yes
Q65	access restrictions	Yes
Q66	drainage and/or leachate collection system(s)	No
Q67	leachate treatment systems	No
Q68	environmental monitoring	Yes
Q69	facility monitoring	Yes
Q70	surveillance	Yes
Q71	plans for intervention measures during active institutional control if there is an unplanned release of radioactive materials from the disposal facility	Yes

Policies

Country: SWITZERLAND

Reporting Year: 2004

Processing/Storage

Policies/Procedures		(Yes;No)
Q73	waste sorting/segregation	Yes
Q74	waste minimization	Yes
Q75	waste storage	Yes
Q76	processing and/or storing and/or disposing of nuclear fuel cycle waste separately from non-nuclear fuel cycle waste (also known as nuclear applications waste)	No
Q78	Does your country have any legislation, regulation, or policy that waste processing must take place prior to storage (see following note)	Yes
Implementation		(Yes;No)
Q80	Does your Country have any waste processing facilities at the same location where the waste is generated?	Yes
Q81	Does your Country have any centralized waste processing facilities?	Yes
Q82	Does your Country have any mobile waste processing facilities?	No
Foreign		(Yes;No)
Q121	Has your country sent any wastes or spent fuel to another country for processing (reprocessing for fuel)?	Yes
Q122	Will some or all of the product(s) of processing/reprocessing be returned to your country?	Yes
Q123	Currently, are any of your country's wastes (processed or unprocessed, including the products of reprocessing) or spent fuel being stored in another country?	Yes
Q124	Has your country accepted any wastes or spent fuel from another country for processing (reprocessing for fuel)?	No

Policies

Country: SWITZERLAND

Reporting Year: 2004

Spent/Disused SRS

Registration		(Yes;No)
Q84	Is there a national level registry?	Yes
Q85	If answer was yes, is the registry used only for disused/spent SRS?	No
Q87	Are there regional-level registries (one or more)?	No
Q90	Are there local-level registries (one or more)?	No
Comment	# 225: Registry	
National level registry at the Swiss Federal Office of Public Health		

Procedures		(Yes;No)
Q91	Does your Country have documented procedures in place to ensure that sealed radioactive sources (SRS) are transferred to secure facilities in a timely manner after their user declares them to be spent?	Yes

Agreements		(Yes;No)
Q93	Government to Government agreements	No
Q94	Government - Supplier agreements	No
Q95	Supplier-User agreements	Yes
Q97	Do any agreements include suppliers that are outside of your Country?	Yes

Release / Disposal		(Yes;No)
Q99	Does your Country have any regulations to free-release spent sealed radioactive sources (SRS)?	Yes
Q100	Has your Country disposed of spent SRS in existing disposal facilities for LILW or HLW waste?	No
Q101	Does your Country plan to dispose of spent SRS in existing or planned disposal facilities for LILW or HLW waste?	Yes
Q102	Has your Country implemented dedicated disposal facilities for spent SRS?	No
Q103	Does your Country have plans to implement dedicated disposal facilities for spent SRS?	No
Comment	# 228: Free release	
Requirements for free-release defined in Radiation Protection Ordinance. Procedure defined in regulation HSK-R-13.		

Policies

Country: SWITZERLAND

Reporting Year: 2004

Import-Export

Radioactive Waste		(Yes;No)
Q104	Does your Country have laws or Regulations restricting either the import or export of radioactive waste (excluding spent fuel)?	Yes

Spent Fuel		(Yes;No)
Q105	Does your Country have laws or Regulations restricting either the import or export of spent fuel?	Yes

Liquid HLW

Storage		(Yes;No)
Q106	Does your Country have high-level liquid wastes in storage?	No

UMMT

Responsibility		(Yes;No)
Q110	Does your Country have any Uranium Mine and Mill Tailings sites that do not have a designated authority to manage them?	No

Decommissioning

Funding		(Yes - All;Yes - Some;No)
Q111	Does your Country require that funds should be set aside in support of future waste management activities, such as decommissioning activities?	Yes - All

Facilities		(Yes;No)
Q119	Does Your Country have any nuclear fuel cycle facilities?	Yes
Q120	Does Your Country have any nuclear applications facilities (non fuel cycle facilities)?	Yes

Timeframe		(Yes - All;Yes - Some;No)
Q112	Does your Country require a time frame for the decommissioning of nuclear fuel cycle facilities once these facilities cease operation?	No
Q113	Does your Country require a time frame for the decommissioning of non-nuclear fuel cycle facilities once these facilities cease operation?	No

Comment # 386: Timeframes for decommissioning

Answer set to "No" as, according to Law, case-specific timeframes shall be defined when necessary.

Future Outlook

Country: SWITZERLAND

Reporting Year: 2004

Data not available.

Future Outlook

Country: SWITZERLAND

Reporting Year: 2004

Data not available.

Future Outlook

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Data not available.

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