



Country Waste Profile Report for SWITZERLAND Reporting Year: 2012

*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: 2012

Waste Class Matrix: **IAEA Def.**

This country does use the IAEA Scheme: No

Description: The Agency's standard matrix

Waste Class Name	Distribution %			
	VLLW	LLW	ILW	HLW
VLLW	100.0	0.0	0.0	0.0
LLW	0.0	100.0	0.0	0.0
ILW	0.0	0.0	100.0	0.0
HLW	0.0	0.0	0.0	100.0

Waste Class Matrix: **NEA-SD**

Yes

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 %			
	VLLW	LLW	ILW	HLW
MD	0.0	100.0	0.0	0.0
MDLC	0.0	89.0	11.0	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 LLW.

Comment **# 362: Waste class MDLC**

MDLC (metal drums lined with concrete) represent concrete containers (nominal volume 0.98 m3) into which either a 200-l drum with cemented waste (standard case) or scrap (exception) have been grouted before shipment. Overpacking purposes are shielding (gamma emitters) and enhanced safety (alpha emitters, including Ra-226). Volume distribution over LLW and ILW 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 50% use of the LDC 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: 2012

Waste Class Matrix: **KEV 2004**

Yes

Description: Generic, disposal-oriented waste classification scheme as defined in Article 51 of the Swiss Nuclear Energy Ordinance (KEV) dated 2004-12-10.

Waste Class Name	Distribution %			
	VLLW	LLW	ILW	HLW
SMA	15.9	83.8	0.3	0.0
ATA	0.0	0.0	100.0	0.0
HAA	0.0	0.0	0.0	100.0
SMA ybc	0.8	98.4	0.8	0.0
ATA ybc	0.0	0.0	100.0	0.0

Comment **# 20681: Definition of KEV 2004 classes**

a) HAA (acronym for "hochaktive Abfälle"): spent fuel elements (when assigned as waste) and vitrified high-level liquid waste from reprocessing of spent fuel. b) ATA ("alphanotoxische Abfälle"): radioactive waste not classified as HAA, with total alpha activity above 20 kBq per g of conditioned waste. c) SMA ("schwach- und mittelaktive Abfälle"): radioactive waste not classified as HAA or ATA. As the criterion for discrimination between ATA and SMA is strictly applicable to conditioned waste (i.e. waste packages ready for storage) only, two additional classes "ATA ybc" and "SMA ybc" are introduced for a tentative ranking of waste "yet to be conditioned".

Comment **# 20682: Derivation of Matrix Coefficients**

Waste accounting entities (such as a waste package) are allocated in parallel to classification systems A (here: the national system "KEV 2004") and B (here: IAEA reference system), based on system specific criteria (here: see attachment, Tables 2/3 and 6/7, respectively). Based on the volume associated with each waste accounting entity, the following parameters are calculated: 1) the total volumes for any couple of A/B classes, 2) the total volumes for any A class. Matrix coefficients are derived by dividing the total volume of any A/B couple through the total volume of the pertinent A class.

Attachment **#1877: Waste Matrix**

Derivation WasteMatrix KEV 2004 2010-02-13.pdf

Outline on Derivation of the NEWMDB Waste Class Matrix "KEV 2004".

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

This country uses the following definitions:

	as-generated waste	processed for handling	processed for storage	processed for disposal
Unprocessed means:	x	x		
Processed means:			x	x

Comment **# 12140: Definitions for Unprocessed and Processed Waste**

In reporting on Swiss radioactive waste, information is quite commonly, e.g. in the case of the Joint Convention Report, discriminated by a waste processing status qualifier, "conditioned" or "yet to be conditioned".

The status "conditioned" refers to waste which has been formally accepted by the pertinent authority as meeting the following general principle: "Radioactive waste shall be conditioned in such a way that the resulting waste forms, together with the packaging elements permanently tied to them, can be submitted to the waste management stages of transport, storage and disposal, without any further intrusive action, overpackaging measures remaining admissible".

The complementary status "yet to be conditioned" logically applies to all waste not fully complying with this principle.

In order to carry the reference information unambiguously forward to NEWMDB, the national terms "conditioned" and "yet to be conditioned" have been simply equalled to NEWMDB terms "processed" and "unprocessed", respectively. Hence, data given for "processed waste" in NEWMDB in fact relate to waste considered as being ready for storage and, intentionally, suitable for disposal.

Groups Overview

Country: SWITZERLAND

Reporting Year: 2012

Reporting Group:	BAG
Inventory Reporting Date:	December 2012
Waste Matrix Used:	KEV 2004
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 Swiss Federal Nuclear Safety Inspectorate (ENSI)], 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 ENSI's supervision (see: Reporting Group "ENSI") - standard procedure for small producers, option for large nuclear research centres (CERN, PSI outside ENSI'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(ENSI)]. 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.

Groups Overview

Country: SWITZERLAND

Reporting Year: 2012

Reporting Group:	ENSI
Inventory Reporting Date:	December 2012
Waste Matrix Used:	KEV 2004
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 ENSI's supervision

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

Comment # 373: Reference Data for Reporting to NEWMDB

Reporting relies on an evaluation of electronic data extracted from the database system ISRAM (Information System on Radioactive Materials), referring to site-specific waste inventories at key date 2009-12-31.

Comment # 374: Reporting on NPP sites

Reporting on NPP sites (KKB, KKG, KKL, KKM) is based on the following concept: (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 waste and solid waste yet to be conditioned are usually stored in buildings or bunkers, liquids or sludges awaiting treatment in tanks].

Comment # 378: Reporting on PSI(ENSI)

Reporting on PSI(ENSI) is based on the following concept: (a) information on local waste management facilities is given collectively under "WMF@PSI-E", (b) waste data are presented 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: conditioned waste and solid waste yet to be conditioned are usually stored in buildings or bunkers, liquids or sludges awaiting treatment in tanks].

Comment # 7224: Reporting on ZWILAG

Reporting on ZWILAG, the central Swiss waste management facility owned by the 4 Swiss NPP, is based on the following concept: (a) information on local waste management facilities is given collectively under "WMF@ZWILAG" with the active storage units (Buildings H, M and further summarized under "others") being identified for comprehensiveness, (b) waste data are presented collectively for the site, (c) the start of both treatment/conditioning and storage operations is indicated as known. [note: vitrified HLW from reprocessing is stored in heavy transport/storage casks at Building H, other conditioned waste or solid waste yet to be conditioned are usually stored in buildings or bunkers, liquids or sludges awaiting treatment in tanks]

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.

Groups Overview

Country: SWITZERLAND

Reporting Year: 2012

Reporting Group:	Foreign
Inventory Reporting Date:	December 2012
Waste Matrix Used:	KEV 2004
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.

Reporting Group:	NEA-SD
Inventory Reporting Date:	December 2012
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: 2012

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 ENSI (formerly 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) SMA.

Waste management facilities that are located at this site:

Site (Structure) : CERN

Country: SWITZERLAND

Reporting Year: 2012

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
SMA	Yes	Yes
ATA	No	No
HAA	No	No
SMA ybc	Yes	Yes
ATA ybc	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
SMA	No	No
ATA	No	No
HAA	No	No
SMA ybc	Yes	Yes
ATA ybc	No	No

Type:	Treatment
Year opened:	1970

Site (Structure) : PSI(BAG)

Country: SWITZERLAND

Reporting Year: 2012

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 SMA.

Waste management facilities that are located at this site:

Site (Structure) : PSI(BAG)

Country: SWITZERLAND

Reporting Year: 2012

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
SMA	Yes	Yes
ATA	No	No
HAA	No	No
SMA ybc	Yes	Yes
ATA ybc	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
SMA	No	No
ATA	No	No
HAA	No	No
SMA ybc	Yes	Yes
ATA ybc	No	No

Type:	Treatment, Conditioning
Year opened:	1980

Site (Structure) : KKB

Country: SWITZERLAND

Reporting Year: 2012

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:

Site (Structure) : KKB

Country: SWITZERLAND

Reporting Year: 2012

Facility:	WMF@KKB
Description:	Waste Management Facilities at KKB
Waste Packages:	package formats for conditioned waste : 100 l steel drum, 200 l steel drum, 1000 l concrete drum

Storage part of facility WMF@KKB

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
SMA	Yes	Yes
ATA	No	No
HAA	No	No
SMA ybc	Yes	Yes
ATA ybc	No	No

List SRS?	No
List UMMT?	No

Capacity:	Refer to comment #7225 under topic "Reporting Group : ENSI"
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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

Processing part of facility WMF@KKB

The following shows processing status for waste classes and SRS.

Waste Class	Actual	Planned
SMA	No	No
ATA	No	No
HAA	No	No
SMA ybc	Yes	Yes
ATA ybc	No	No

Type:	Treatment, Conditioning
Year opened:	1969

Site (Data) : KKB

Stock of waste as at December 2012

Country: SWITZERLAND

Reporting Year: 2012

Site Name: KKB

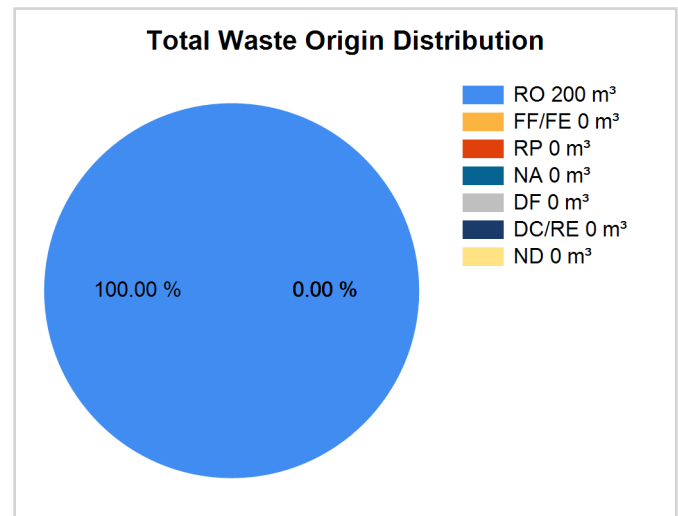
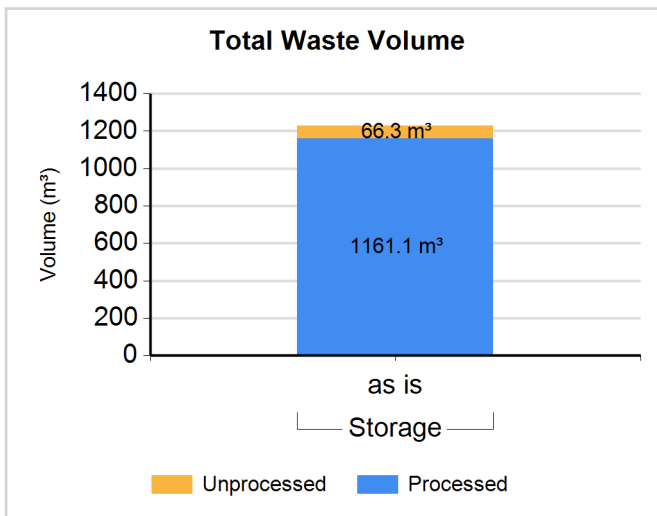
Full Name: Kernkraftwerk Beznau

Inventory Reporting Date: December 2012

Waste Matrix Used: KEV 2004

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: SMA

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
SMA	Storage	Y	N	1161.100	1161.100	100.00	0.00	0.00	0.00	0.00	0.00	0.00

Waste Class: SMA ybc

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
SMA ybc	Storage	N	N	66.300	66.300	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 2012

Country: SWITZERLAND

Reporting Year: 2012

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

RadioNuclide Inventory in Storage

Total Alpha Activity (GBq):	130
Total Beta/Gamma Activity (GBq):	600000

Comment **# 22625: Scope of Nuclide Inventory Data**

Reported overall activities refer to processed (i.e. conditioned) waste, only, and relate to the reference date of the submission. Information on unprocessed (i.e. yet-to-be conditioned) waste is excluded as pertinent provisional data are, frequently, assessed, reviewed or completed during the conditioning process.

Site (Structure) : KKG

Country: SWITZERLAND

Reporting Year: 2012

Full Name: Kernkraftwerk Gösgen

Description:

Official Website:

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

Waste management facilities that are located at this site:

Site (Structure) : KKG

Country: SWITZERLAND

Reporting Year: 2012

Facility:	WMF@KKG
Description:	Waste Management Facilities at KKG
Waste Packages:	package formats for conditioned waste : 200 l steel drum, 1000 l concrete drum

Storage part of facility WMF@KKG

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
SMA	Yes	Yes
ATA	No	No
HAA	No	No
SMA ybc	Yes	Yes
ATA ybc	No	No

List SRS?	No
List UMMT?	No

Capacity:	Refer to comment #7225 under topic "Reporting Group : ENSI"
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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

Processing part of facility WMF@KKG

The following shows processing status for waste classes and SRS.

Waste Class	Actual	Planned
SMA	No	No
ATA	No	No
HAA	No	No
SMA ybc	Yes	Yes
ATA ybc	No	No

Type:	Treatment, Conditioning
Year opened:	1979

Site (Data) : KKG

Stock of waste as at December 2012

Country: SWITZERLAND

Reporting Year: 2012

Site Name: KKG

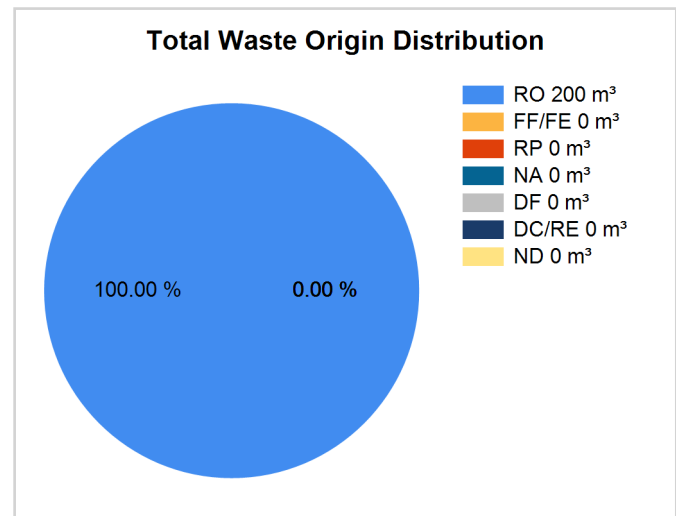
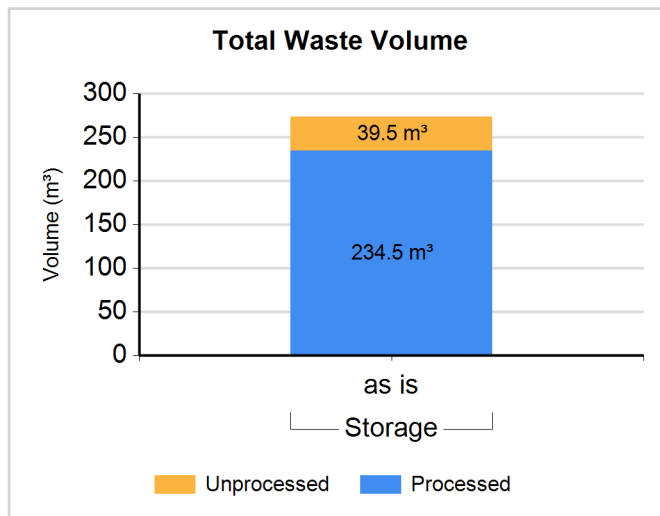
Full Name: Kernkraftwerk Gösgen

Inventory Reporting Date: December 2012

Waste Matrix Used: KEV 2004

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: SMA

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
SMA	Storage	Y	N	234.500	234.500	100.00	0.00	0.00	0.00	0.00	0.00	0.00

Waste Class: SMA ybc

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
SMA ybc	Storage	N	N	39.500	39.500	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 2012

Country: SWITZERLAND

Reporting Year: 2012

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

RadioNuclide Inventory in Storage

Total Alpha Activity (GBq):	3.4
Total Beta/Gamma Activity (GBq):	59000

Comment **# 22626: Scope of Nuclide Inventory Data**

Reported overall activities refer to processed (i.e. conditioned) waste, only, and relate to the reference date of the submission. Information on unprocessed (i.e. yet-to-be conditioned) waste is excluded as pertinent provisional data are, frequently, assessed, reviewed or completed during the conditioning process.

Site (Structure) : KKL

Country: SWITZERLAND

Reporting Year: 2012

Full Name: Kernkraftwerk Leibstadt

Description:

Official Website:

License Holder(s): Kernkraftwerk Leibstadt AG

Waste management facilities that are located at this site:

Site (Structure) : KKL

Country: SWITZERLAND

Reporting Year: 2012

Facility:	WMF@KKL
Description:	Waste Management Facilities at KKL
Waste Packages:	package formats for conditioned waste : 200 l steel drum

Storage part of facility WMF@KKL

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
SMA	Yes	Yes
ATA	No	No
HAA	No	No
SMA ybc	Yes	Yes
ATA ybc	No	No

List SRS?	No
List UMMT?	No

Capacity:	Refer to comment #7725 under topic "Reporting Group : ENSI"
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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

Processing part of facility WMF@KKL

The following shows processing status for waste classes and SRS.

Waste Class	Actual	Planned
SMA	No	No
ATA	No	No
HAA	No	No
SMA ybc	Yes	Yes
ATA ybc	No	No

Type:	Treatment, Conditioning
Year opened:	1984

Site (Data) : KKL

Stock of waste as at December 2012

Country: SWITZERLAND

Reporting Year: 2012

Site Name: KKL

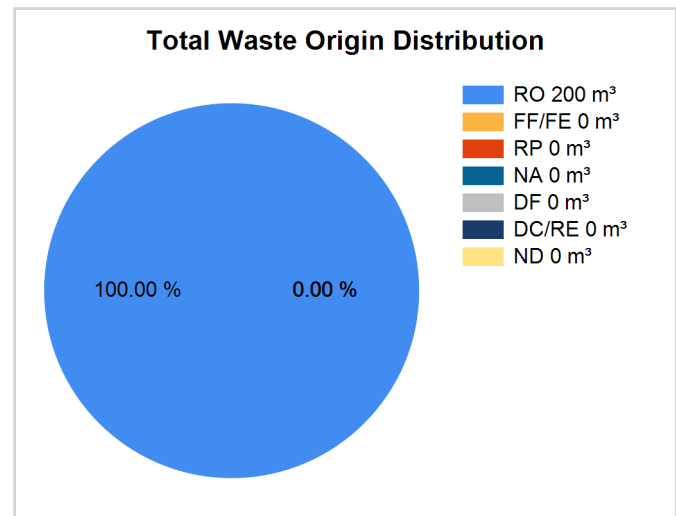
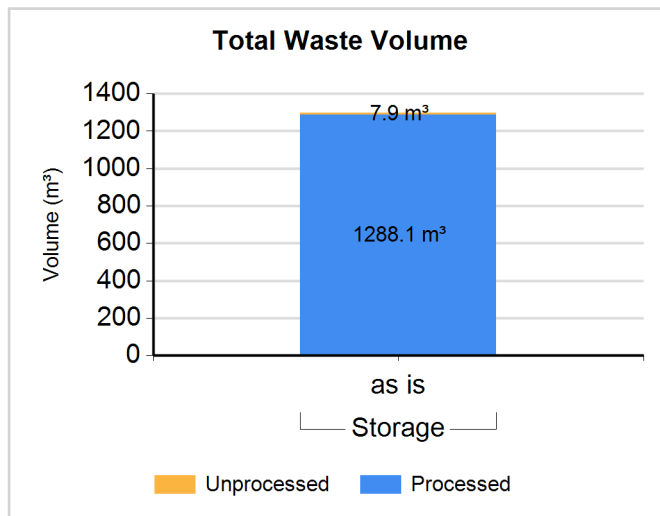
Full Name: Kernkraftwerk Leibstadt

Inventory Reporting Date: December 2012

Waste Matrix Used: KEV 2004

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: SMA

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
SMA	Storage	Y	N	1288.100	1288.100	100.00	0.00	0.00	0.00	0.00	0.00	0.00

Waste Class: SMA ybc

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
SMA ybc	Storage	N	N	7.900	7.900	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

Site (Data) : KKL

Stock of waste as at December 2012

Country: SWITZERLAND

Reporting Year: 2012

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

RadioNuclide Inventory in Storage

Total Alpha Activity (GBq):	68
Total Beta/Gamma Activity (GBq):	320000

Comment **# 22627: Scope of Nuclide Inventory Data**

Reported overall activities refer to processed (i.e. conditioned) waste, only, and relate to the reference date of the submission. Information on unprocessed (i.e. yet-to-be conditioned) waste is excluded as pertinent provisional data are, frequently, assessed, reviewed or completed during the conditioning process.

Site (Structure) : KKM

Country: SWITZERLAND

Reporting Year: 2012

Full Name: Kernkraftwerk Mühleberg

Description:

Official Website:

License Holder(s): BKW FMB Energie AG

Waste management facilities that are located at this site:

Site (Structure) : KKM

Country: SWITZERLAND

Reporting Year: 2012

Facility:	WMF@KKM
Description:	Waste Management Facilities at KKM
Waste Packages:	package formats for conditioned waste : 200 l steel drum

Storage part of facility WMF@KKM

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
SMA	Yes	Yes
ATA	No	No
HAA	No	No
SMA ybc	Yes	Yes
ATA ybc	No	No

List SRS?	No
List UMMT?	No

Capacity:	Refer to comment #7225 under topic "Reporting Group : ENSI"
-----------	---

Types of Storage Units

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

Processing part of facility WMF@KKM

The following shows processing status for waste classes and SRS.

Waste Class	Actual	Planned
SMA	No	No
ATA	No	No
HAA	No	No
SMA ybc	Yes	Yes
ATA ybc	No	No

Type:	Treatment, Conditioning
Year opened:	1971

Site (Data) : KKM

Stock of waste as at December 2012

Country: SWITZERLAND

Reporting Year: 2012

Site Name: KKM

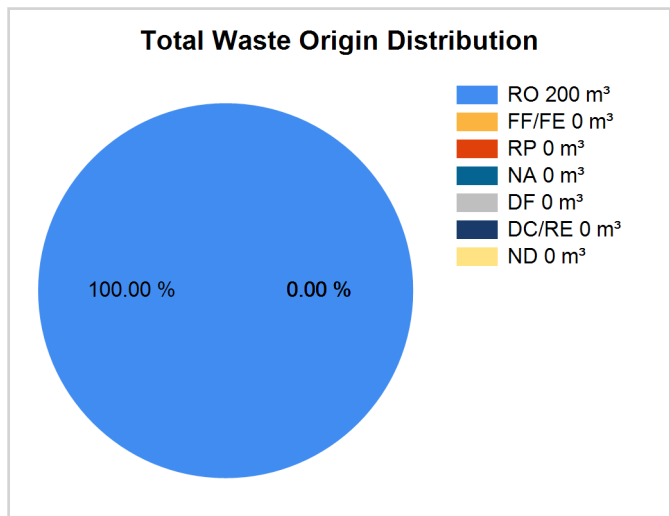
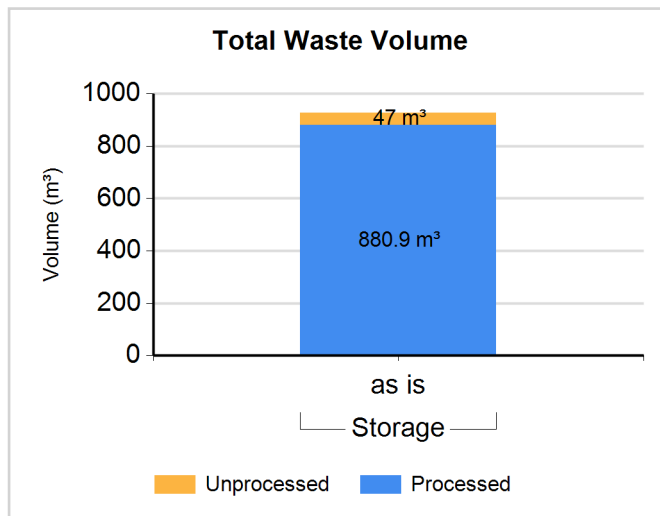
Full Name: Kernkraftwerk Mühleberg

Inventory Reporting Date: December 2012

Waste Matrix Used: KEV 2004

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: SMA

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
SMA	Storage	Y	N	880.900	880.900	100.00	0.00	0.00	0.00	0.00	0.00	0.00

Waste Class: SMA ybc

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
SMA ybc	Storage	N	N	47.000	47.000	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

Site (Data) : KKM

Stock of waste as at December 2012

Country: SWITZERLAND

Reporting Year: 2012

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

RadioNuclide Inventory in Storage

Total Alpha Activity (GBq):	43
Total Beta/Gamma Activity (GBq):	280000

Comment **# 22628: Scope of Nuclide Inventory Data**

Reported overall activities refer to processed (i.e. conditioned) waste, only, and relate to the reference date of the submission. Information on unprocessed (i.e. yet-to-be conditioned) waste is excluded as pertinent provisional data are, frequently, assessed, reviewed or completed during the conditioning process.

Site (Structure) : PSI(ENSI)

Country: SWITZERLAND

Reporting Year: 2012

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

Description:

Official Website:

License Holder(s): Paul-Scherrer-Institut

Waste management facilities that are located at this site:

Site (Structure) : PSI(ENSI)

Country: SWITZERLAND

Reporting Year: 2012

Facility:	WMF@PSI-E
Description:	Waste Management Facilities at PSI-East (Nuclear Facilities under HSK supervision)
Waste Packages:	package formats for conditioned waste : 200 l steel drum, 1000 l concrete drum, 1200 l fibre concrete drum, Mosaik II, 4.5 m3 container KC

Storage part of facility WMF@PSI-E

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
SMA	Yes	Yes
ATA	Yes	Yes
HAA	No	No
SMA ybc	Yes	Yes
ATA ybc	Yes	Yes

List SRS?	No
List UMMT?	No

Capacity:	Refer to comment #7225 under topic "Reporting Group : ENSI"
-----------	---

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

Processing part of facility WMF@PSI-E

The following shows processing status for waste classes and SRS.

Waste Class	Actual	Planned
SMA	No	No
ATA	No	No
HAA	No	No
SMA ybc	Yes	Yes
ATA ybc	Yes	Yes

Type:	Treatment, Conditioning
Year opened:	1967

Site (Data) : PSI(ENSI)

Stock of waste as at December 2012

Country: SWITZERLAND

Reporting Year: 2012

Site Name: PSI(ENSI)

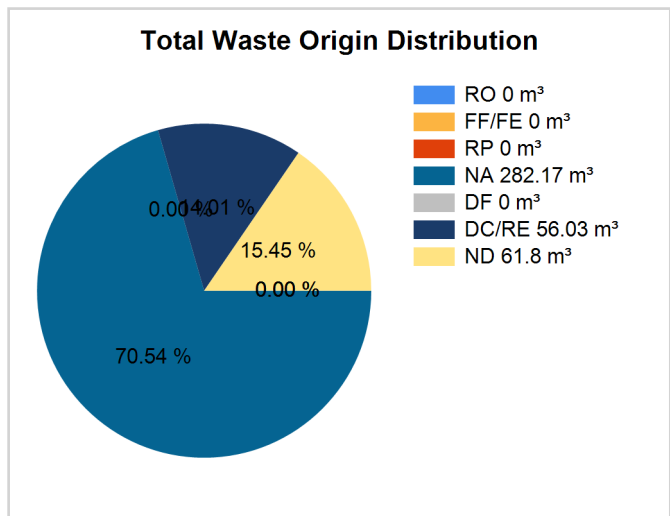
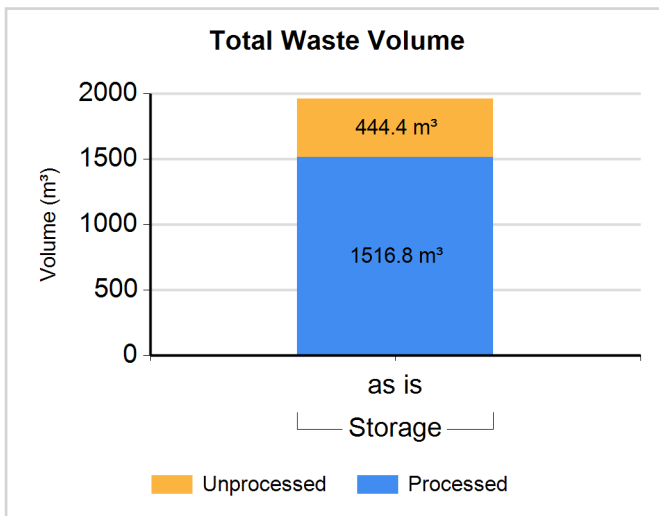
Full Name: Paul-Scherrer-Institut (Facilities under ENSI supervision)

Inventory Reporting Date: December 2012

Waste Matrix Used: KEV 2004

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: SMA

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
SMA	Storage	Y	N	1456.300	1456.300	0.00	0.00	0.00	73.21	0.00	26.79	0.00

Waste Class: ATA

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
ATA	Storage	Y	N	60.500	60.500	0.00	0.00	0.00	100.00	0.00	0.00	0.00

Waste Class: SMA ybc

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
SMA ybc	Storage	N	N	422.300	422.300	0.00	0.00	0.00	8.96	0.00	29.24	61.80

Waste Class: ATA ybc

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
ATA ybc	Storage	N	N	22.100	22.100	0.00	0.00	0.00	100.00	0.00	0.00	0.00

Site (Data) : PSI(ENSI)

Stock of waste as at December 2012

Country: SWITZERLAND

Reporting Year: 2012

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

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

RadioNuclide Inventory in Storage

Total Alpha Activity (GBq):	19000
Total Beta/Gamma Activity (GBq):	6000000

Comment **# 22629: Scope of Nuclide Inventory Data**

Reported overall activities refer to processed (i.e. conditioned) waste, only, and relate to the reference date of the submission. Information on unprocessed (i.e. yet-to-be conditioned) waste is excluded as pertinent provisional data are, frequently, assessed, reviewed or completed during the conditioning process.

Site (Structure) : ZWILAG

Country: SWITZERLAND

Reporting Year: 2012

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
Waste Packages:	package formats for conditioned waste : 200 l steel drum, 1000 l concrete drum, Mosaik II, 4.5 m3 container KC, 180 l steel flask (AREVA)

Storage part of facility WMF@ZWILAG

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
SMA	Yes	Yes
ATA	Yes	Yes
HAA	Yes	Yes
SMA ybc	Yes	Yes
ATA ybc	No	Yes

List SRS?	No
List UMMT?	No

Capacity:	Refer to comment #7225 under topic "Reporting Group : ENSI"
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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: 2012

Processing part of facility **WMF@ZWILAG**

The following shows processing status for waste classes and SRS.

Waste Class	Actual	Planned
SMA	No	No
ATA	No	No
HAA	No	No
SMA ybc	Yes	Yes
ATA ybc	No	No

Type:	Treatment, Conditioning
Year opened:	2001

Site (Data) : ZWILAG

Stock of waste as at December 2012

Country: SWITZERLAND

Reporting Year: 2012

Site Name: ZWILAG

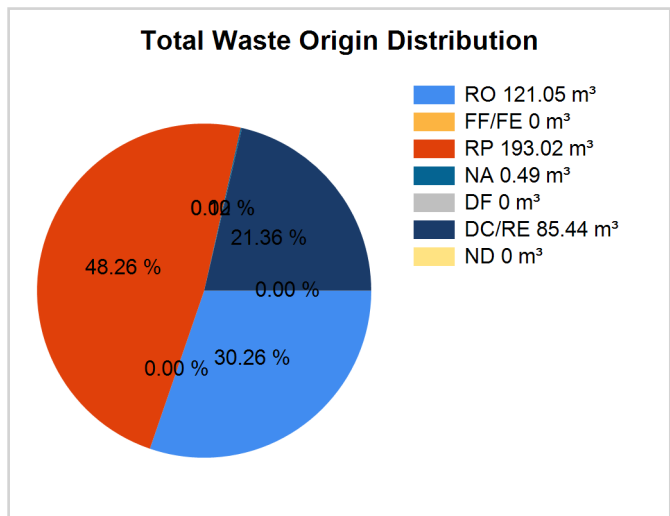
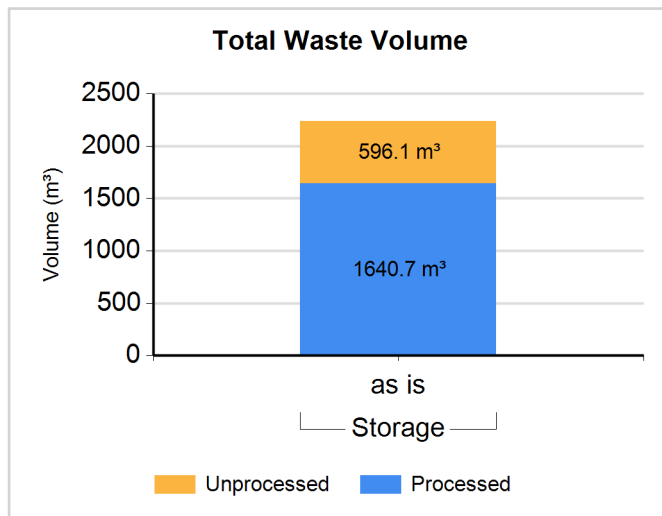
Full Name: Zentrales Zwischenlager Würenlingen

Inventory Reporting Date: December 2012

Waste Matrix Used: KEV 2004

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: SMA

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
SMA	Storage	Y	N	1520.800	1520.800	97.65	0.00	0.00	0.27	0.00	2.08	0.00

Waste Class: ATA

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
ATA	Storage	Y	N	64.500	64.500	0.00	0.00	93.02	0.00	0.00	6.98	0.00

Waste Class: HAA

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
HAA	Storage	Y	N	55.400	55.400	0.00	0.00	100.00	0.00	0.00	0.00	0.00

Waste Class: SMA ybc

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
SMA ybc	Storage	N	N	596.100	596.100	23.40	0.00	0.00	0.22	0.00	76.38	0.00

Site (Data) : ZWILAG

Stock of waste as at December 2012

Country: SWITZERLAND

Reporting Year: 2012

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
Incineration	N	N	Same	N
Metal Melting	N	N	Same	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	Same	N
Cementation	N	N	Increase	N
Grouting	N	N	Increase	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. Until the end of 2008, 587 drums have been produced within 9 test campaigns. Definitive license for facility operation was given by ENSI in September 2009.

RadioNuclide Inventory in Storage

Total Alpha Activity (GBq):	57000000
Total Beta/Gamma Activity (GBq):	4100000000

Comment **# 22630: Scope of Nuclide Inventory Data**

Reported overall activities refer to processed (i.e. conditioned) waste, only, and relate to the reference date of the submission. Information on unprocessed (i.e. yet-to-be conditioned) waste is excluded as pertinent provisional data are, frequently, assessed, reviewed or completed during the conditioning process.

Site (Structure) : N-Atlantic

Country: SWITZERLAND

Reporting Year: 2012

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 2012

Country: SWITZERLAND

Reporting Year: 2012

Site Name: N-Atlantic

Full Name: North Atlantic Ocean

Inventory Reporting Date: December 2012

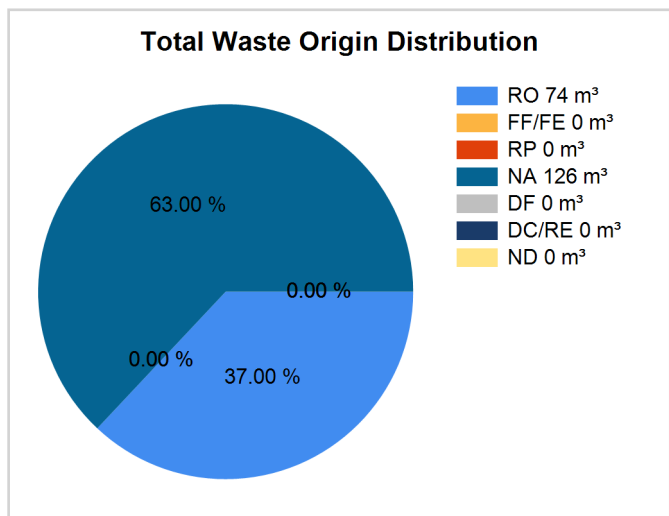
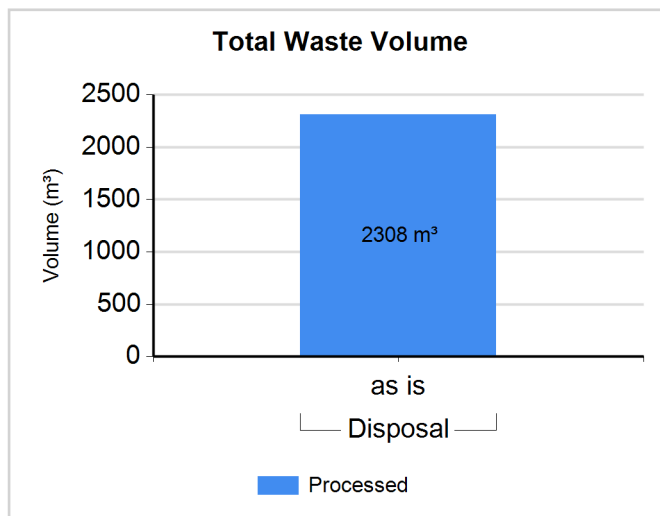
Waste Matrix Used: NEA-SD

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	42.00	0.00	0.00	58.00	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	32.00	0.00	0.00	68.00	0.00	0.00	0.00

Comment # 6679: The additional characteristics of the waste

Processed: solid (non-dispersible)

Site (Data) : N-Atlantic

Stock of waste as at December 2012

Country: SWITZERLAND

Reporting Year: 2012

RadioNuclide Inventory in Disposal

Total Alpha Activity (GBq):	4300
Total Beta/Gamma Activity (GBq):	4415000

Comment **# 27221: Data source**

IAEA-TECDOC-1105 (1999), Table IV.

Regulators

Country: SWITZERLAND

Reporting Year: 2012

Name:	ENSI
Full Name:	Swiss Federal Nuclear Safety Inspectorate ENSI
Divison:	Division for Transport and Waste Management Safety (SITE)
City or Town:	CH-5200 Brugg
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: 2012

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

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

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:	SEFV		
Title or Name:	Federal Ordinance on the Decommissioning Fund and on the Waste Management Fund for Nuclear Facilities		
Reference Number:	732.17		
Date Promulgated or Proclaimed:	12/7/2007	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	

Regulations / Laws

Country: SWITZERLAND

Reporting Year: 2012

Name:	B05		
Title or Name:	Requirements for Conditioning of Radioactive Waste		
Reference Number:	HSK-B05		
Date Promulgated or Proclaimed:	2/12/2007	Regulation	

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	

Name:	G05		
Title or Name:	Transport and Storage Casks (T/S-Casks) for Interim Storage		
Reference Number:	ENSI-G05		
Date Promulgated or Proclaimed:	4/28/2008	Regulation	

Name:	GStSV		
Title or Name:	Federal Ordinance on Fees in the Area of Radiation Protection		
Reference Number:	814.56		
Date Promulgated or Proclaimed:	7/5/2006	Law	

Name:	B02		
Title or Name:	Periodic Reporting by Nuclear Facilities		
Reference Number:	ENSI-B02		
Date Promulgated or Proclaimed:	3/1/2012	Regulation	

Comment **# 18058: Regulation B02**

Includes requirements for reporting on radioactive waste management and inventories:

- a) annual reports : all facilities (§ 4; § 4.2 lit c, f, e)
- b) quarterly reports : ZWILAG (§ 7 lit g); PSI-East (§ 7 lit g, k, l)
- c) monthly reports : NPP (§ 8; § 8.2 lit b)

Regulations / Laws

Country: SWITZERLAND

Reporting Year: 2012

Name:	G03		
Title or Name:	Specific Design Principles for Deep Geological Repositories and Requirements for the Safety Case		
Reference Number:	ENSI-G03		
Date Promulgated or Proclaimed:	4/2/2009	Regulation	

Name:	B04		
Title or Name:	Clearance of Materials and Areas from Controlled Zones		
Reference Number:	ENSI-B04		
Date Promulgated or Proclaimed:	8/27/2009	Regulation	

Name:	G04		
Title or Name:	Design and Operation of Storage Facilities for Radioactive Waste and Spent Fuel		
Reference Number:	ENSI-G04		
Date Promulgated or Proclaimed:	3/1/2012	Regulation	

Milestones

Country: SWITZERLAND

Reporting Year: 2012

Start Year or Reference Year:	2004	End Year:	
Description of Milestone:			
Sectoral Plan (Sachplan) for deep geological repositories			

Comment **# 24264: General**

Tool elaborated, as required by the new Nuclear Energy Ordinance (KEV), by the Federal Office of Energy (a) to settle safety-related and other criteria relevant to the selection of regions and sites, (b) to define the procedure on how to designate sites from candidate regions. Key intentions are to present transparent technical and procedural rules for the site selection process and to implement public involvement. Draft versions of the strategic part have been submitted to commenting by involved bodies in 2006 and 2007. Its final version has been released by the Federal Council on April 2, 2008. The procedure is split into three subsequent phases. In Phase 1, potentially suitable geological regions are to be identified, qualified and accepted for further consideration. Phase 2 is focussed on selecting at least two candidate sites for each repository. Such sites shall be investigated in detail in Phase 3, before license applications for selected sites.

Comment **# 25650: Phase 1 (2008-2011)**

In October 2008, Nagra submits a waste management programme and a proposal on 6 and 3 candidate regions for deep geologic disposal of LILW-SL (SMA) and SF/HLW/LILW-LL (LMA/HAA), respectively. ENSI basically accepts Nagra's proposals early in 2010. The final summary report for Phase 1 is accepted by the Federal Government in November 2011: all of the identified candidate regions can be carried over into Phase 2, and Phase 2 can be launched.

Comment **# 25651: Phase 2 (2011-)**

In March 2011, ENSI accepts Nagra's proposal on site investigations specifically related to Phase 2. In December 2011, Nagra submits first proposals on candidate sites for surface facilities, as a basis for public discussion. The procedure is going on according to plan.

Start Year or Reference Year:	2002	End Year:	2006
Description of Milestone:			
Project Entsorgungsnachweis 02			

Comment **# 24263:**

Completion of the feasibility study for a SF/HLW/LILW-LL repository (EL-HAA/LMA), as requested by the issue of Project Gewaehr in 1988, 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/LILW-LL programme on the Opalinus clay and the candidate siting area of the Zürcher Weinland. After review of Nagra's Technical documentation by national and international expert teams, the Federal Council approves the Entsorgungsnachweis on June 28, 2006. Focussing investigations on the proposed potential region was, however, disapproved.

Start Year or Reference Year:	1996	End Year:	2003
Description of Milestone:			
Candidate site "Wellenberg" for a LILW-SL repository (Stage 2)			

Comment **# 24262:**

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. The project is abandoned by the potential operator company GNW, which is formally disbanded in 2003 after completion of recultivation and settlement of further obligations.

Milestones

Country: SWITZERLAND

Reporting Year: 2012

Start Year or Reference Year:	1993	End Year:	1995
Description of Milestone:			
Candidate site "Wellenberg" for a LILW-SL repository (Stage 1)			

Comment # 24261:

Wellenberg identified by Nagra as candidate site for a LILW-SL repository ("EL-SMA") 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:			
Electronic Waste Management Database			

Comment # 24260:

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			

Comment # 24259:

Planning, construction and commissioning of a central storage facility (ZWILAG) at Würenlingen for spent fuel, HLW and any other type of waste, with conditioning facilities and plasma arc incinerator/melter.

Start Year or Reference Year:	1985	End Year:	1988
Description of Milestone:			
Project Gewaehr 85			

Comment # 24258:

Reports submitted by Nagra in 1985, based on a concept with two repositories (EL-SMA for short-lived LILW; EL-HAA/LMA for HLW, spent fuel and long-lived LILW). 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:			
Last OECD/NEA sea dumping campaign in the Northern Atlantic Ocean.			

Comment # 24257:

Dumping of Swiss LILW stopped in 1983, formal disclaimer for a continued use of this disposal option by Swiss Government in 1994.

Milestones

Country: SWITZERLAND

Reporting Year: 2012

Start Year or Reference Year:	1978	End Year:	1978
Description of Milestone:			
Feasibility demonstration for geological disposal of HLW in Switzerland			

Comment **# 24256:**

Nagra report submitted to and accepted by authorities. Issue: Nagra has to demonstrate feasibility for disposal of all waste categories (HLW, ILW and LLW) taking account of progress in R&D, until 1985.

Start Year or Reference Year:	1972	End Year:	1972
Description of Milestone:			
Founding of Nagra			

Comment **# 24255:**

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 arisings from nuclear applications in medicine, industry and research).

Future Outlook

Country: SWITZERLAND

Reporting Year: 2012

Data not available.

Future Outlook

Country: SWITZERLAND

Reporting Year: 2012

Data not available.

Future Outlook

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Reporting Year: 2012

Data not available.

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