

## 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.

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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 m<sup>3</sup>, 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 m<sup>3</sup>) 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).

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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