



**Country Waste Profile Report for
HUNGARY
Reporting Year: 2009**

*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: HUNGARY

Reporting Year: 2009

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: **Paks NPP**

Yes

Description: Solid_LL: solid, low level
 Solid_HL: solid, high level
 Liquid_EC: liquid, evaporator concentrate
 Liquid_RE: liquid, resin
 Liquid_O: other liquid

Waste Class Name	Distribution %			
	VLLW	LLW	ILW	HLW
Solid_LL	10.0	80.0	10.0	0.0
Solid_HL	0.0	0.0	90.0	10.0
Liquid_EC	0.0	20.0	80.0	0.0
Liquid_RE	0.0	0.0	90.0	10.0
Liquid_O	0.0	60.0	40.0	0.0

Waste Class Matrix: **PURAM_1**

Yes

Description:

Waste Class Name	Distribution %			
	VLLW	LLW	ILW	HLW
LILW-SL	20.0	70.0	10.0	0.0
LILW-LL	0.0	90.0	10.0	0.0
HLW	0.0	0.0	0.0	100.0

Waste Class Matrix: **PURAM_2**

Yes

Description: Solid_LL: solid, low level

Waste Class Name	Distribution %			
	VLLW	LLW	ILW	HLW
Solid_LL	10.0	80.0	10.0	0.0

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

Waste Classification Schemes

Country: HUNGARY

Reporting Year: 2009

This country uses the following definitions:

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

Groups Overview

Country: HUNGARY

Reporting Year: 2009

Reporting Group:	PNPP
Inventory Reporting Date:	December 2009
Waste Matrix Used:	Paks NPP
Description:	Paks NPP

Site Name	Facility Name	Facilities Defined		
Paks	Compaction	processing		
	Evaporat.	processing		
	PaksStore		storage	

Reporting Group:	PURAM_NRWR
Inventory Reporting Date:	December 2009
Waste Matrix Used:	PURAM_2
Description:	Public Agency for Radioactive Waste Management Ltd. (PURAM) Bátaapáti_National Radioactive Waste Repository (NRWR)

Site Name	Facility Name	Facilities Defined		
Bátaapáti	DISPOSAL			disposal
	STORAGE	processing	storage	

Reporting Group:	PURAM_RWTD
Inventory Reporting Date:	December 2009
Waste Matrix Used:	PURAM_1
Description:	Public Agency for Radioactive Waste Management Ltd. (PURAM) Püspökszilágy_Radioactive Waste Treatment and Disposal Facility (RWTFDF)

Site Name	Facility Name	Facilities Defined		
Püspökszil	SSRS			disposal
	STORAGE	processing	storage	
	VAULTS	processing		disposal

Site (Structure) : Paks

Country: HUNGARY

Reporting Year: 2009

Full Name: Paks Nuclear Power Plant

Description:

Official Website:

License Holder(s): Paks Nuclear Power Plant Ltd.

Waste management facilities that are located at this site:

Facility:	Compaction
Description:	Solid waste compression for in-drum compactor.
Detailed Facility Description:	To reduce the volume of compactable radioactive waste, 500 kN press is used, achieving an average reduction factor 5.
Waste Packages:	200 I metal drums.
Financing:	Paks Nuclear Power Plant Ltd.

Processing part of facility Compaction

The following shows processing status for waste classes and SRS.

Waste Class	Actual	Planned
Solid_LL	Yes	Yes
Solid_HL	No	No
Liquid_EC	No	No
Liquid_RE	No	No
Liquid_O	No	No

Type:	Treatment
Year opened:	1988

Site (Structure) : Paks

Country: HUNGARY

Reporting Year: 2009

Facility:	Evaporat.
Description:	Liquid waste evaporation
Detailed Facility Description:	Waste waters with chemical content are generated from various sources within the controlled zone of the power plant. These water solutions with low (3-5 g/dm ³) solid content contain all the dissolved chemicals that are used for maintaining the water regime of the primary coolant, reconditioning of the water purifiers, fine adjustment of the reactor power and decontamination purposes. After chemical treatment, the collected waste waters are evaporated to produce a concentrate containing about 200 g/dm ³ boric acid.
Waste Packages:	Special tanks was designated for storing evaporator bottoms.
Financing:	Paks Nuclear Power Plant Ltd.

Processing part of facility Evaporat.

The following shows processing status for waste classes and SRS.

Waste Class	Actual	Planned
Solid_LL	No	No
Solid_HL	No	No
Liquid_EC	Yes	Yes
Liquid_RE	No	No
Liquid_O	Yes	Yes

Type:	Treatment
Year opened:	1985

Site (Structure) : Paks

Country: HUNGARY

Reporting Year: 2009

Facility:	PaksStore
Description:	Storage for operational waste
Detailed Facility Description:	The solid and liquid radioactive wastes that are generated during the operation of the nuclear power plant are processed and temporarily stored in the plant.
Waste Packages:	200 l metal drums for solid_LL waste, 381 - 550 m3 tanks for liquid waste, wells for solid_HL waste
Financing:	Paks Nuclear Power Plant Ltd.

Storage part of facility PaksStore

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
Solid_LL	Yes	Yes
Solid_HL	Yes	Yes
Liquid_EC	Yes	Yes
Liquid_RE	Yes	Yes
Liquid_O	Yes	Yes

List SRS?	No
List UMMT?	No

Capacity:	1500 m3 for solid_LL 11100 m3 for liquid 220 m3 for solid_HL
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Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
SOLID_LL	building	1982	No	No	No	No
LIQUID	tank (other)	1982	No	No	No	No
SOLID_HL	well	1982	No	No	No	No

Site (Data) : Paks

Stock of waste as at December 2009

Country: HUNGARY

Reporting Year: 2009

Site Name: Paks

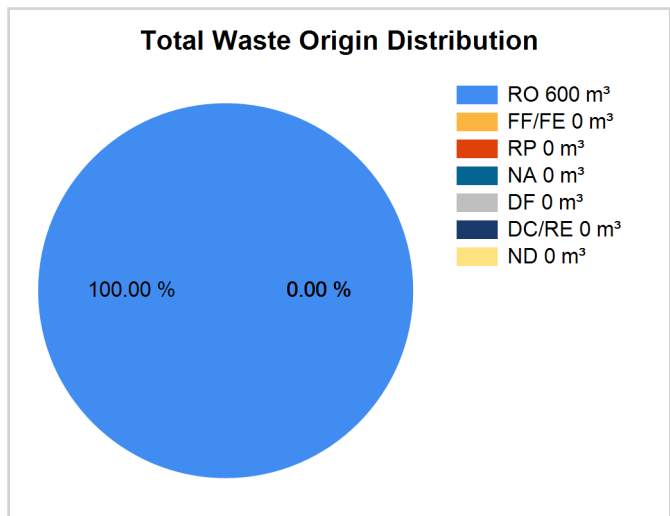
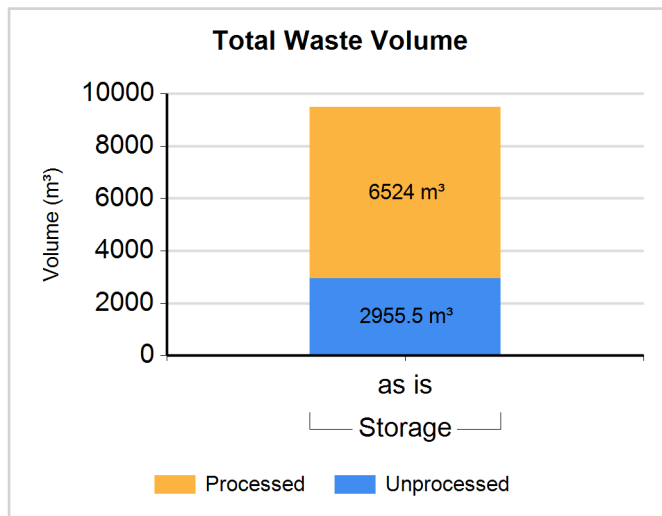
Full Name: Paks Nuclear Power Plant

Inventory Reporting Date: December 2009

Waste Matrix Used: Paks NPP

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: Solid_LL

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
Solid_LL	Storage	N	N	848.000	848.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Solid_LL	Storage	Y	N	839.000	839.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00

Waste Class: Solid_HL

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
Solid_HL	Storage	N	N	92.500	92.500	100.00	0.00	0.00	0.00	0.00	0.00	0.00

Waste Class: Liquid_EC

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
Liquid_EC	Storage	Y	N	5685.000	5685.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00

Waste Class: Liquid_RE

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
Liquid_RE	Storage	N	N	156.000	156.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00

Waste Class: Liquid_O

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
Liquid_O	Storage	N	N	1859.000	1859.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00

Site (Data) : Paks

Stock of waste as at December 2009

Country: HUNGARY

Reporting Year: 2009

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
Evaporation	N	N	Same	N
Ion Exchange	N	N	Same	N
Wastewater Treatment	N	Y		N

RadioNuclide Inventory in Storage

RadioNuclide	Activity (GBq)
Americium (Am-241)	4160
Carbon (C-14)	1620
Cesium (Cs-137)	379000
Cesium (Cs-134)	79100
Cobalt (Co-60)	1470
Curium (Cm-244)	15700
Curium (Cm-242)	5.3
Hydrogen (H-3)	774
Iron (Fe-55)	57900
Nickel (Ni-63)	1150
Nickel (Ni-59)	30
Plutonium (Pu-239)	4110
Plutonium (Pu-238)	17000
Silver (Ag-110m)	9
Strontium (Sr-90)	245000
Technetium (Tc-99)	55
Uranium (U-238)	1.1
Uranium (U-235)	0.3
Uranium (U-234)	21

Site (Structure) : B́ataaṕati

Country: HUNGARY

Reporting Year: 2009

Full Name: National Radioactive Waste Repository (NRWR)

Description: The National Radioactive Waste Repository (NRWR) is the repository for LLW/ILW coming from the operation and decommissioning of the Paks nuclear power plant. This is underground (granitic) repositories at up to 250 m depth were considered. The disposal area is chamber-type arrangement for the waste drums and the disposal containers.

Official Website:

License Holder(s): Public Agency for Radioactive Waste Management Ltd. (PURAM)

Waste management facilities that are located at this site:

Facility:	DISPOSAL
Description:	intermediate depth disposal of solid (or solidified) LLW and ILW waste from NPP
Detailed Facility Description:	The repository chambers are designed for safe disposal of low and intermediate radioactive waste streams arising from the operation and later decommissioning of Paks Nuclear Power Plant.
Waste Packages:	9 metal drums (200 l each) in a 7 m ³ reinforced concrete container
Facility Operation:	Public Agency for Radioactive Waste Management Ltd. (PURAM)
Financing:	Central Nuclear Financial Fund (CNFF)

Site (Structure) : Bátaapáti

Country: HUNGARY

Reporting Year: 2009

Disposal part of facility**DISPOSAL**

The following shows disposal status for waste classes and SRS.

Waste Class	Actual	Planned
Solid_LL	No	Yes

List SRS?	No
List UMMT?	No

Type:	geological (cavern)		
Facility is modular?	Yes		
Capacity existing (m3):	0	Capacity planned (m3):	27000

Depth (m):	250-300	Host medium:	crystalline rock (granite)
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Phase Name	Start Year	End Year	Estimate
planning and/or concept assessment	1993	1996	False
site selection	1996	2005	False
design	1996	0	False
construction	2006	0	False
commissioning	2008	0	False

Site (Structure) : B́ataaṕati

Country: HUNGARY

Reporting Year: 2009

Facility:	STORAGE
Description:	Buffer storage in operational/technological building (on-surface) of the National Radioactive Waste Repository
Detailed Facility Description:	The hall of the technological building is buffer storage, where waste packages remain until their final packaging is completed (example the drums move into the reinforced concrete container).
Waste Packages:	200 l metal drums
Facility Operation:	Public Agency for Radioactive Waste Management Ltd. (PURAM)
Financing:	Central Nuclear Financial Fund (CNFF)

Storage part of facility STORAGE

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
Solid_LL	Yes	Yes

List SRS?	No
List UMMT?	No

Capacity:	3000 metal drums (200 l)
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Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
O.Building	building	2008	No	No	No	No

Processing part of facility STORAGE

The following shows processing status for waste classes and SRS.

Waste Class	Actual	Planned
Solid_LL	No	Yes

Type:	Conditioning
Year opened:	2012

Site (Data) : B́ataapáti

Stock of waste as at December 2009

Country: HUNGARY

Reporting Year: 2009

Site Name: B́ataapáti

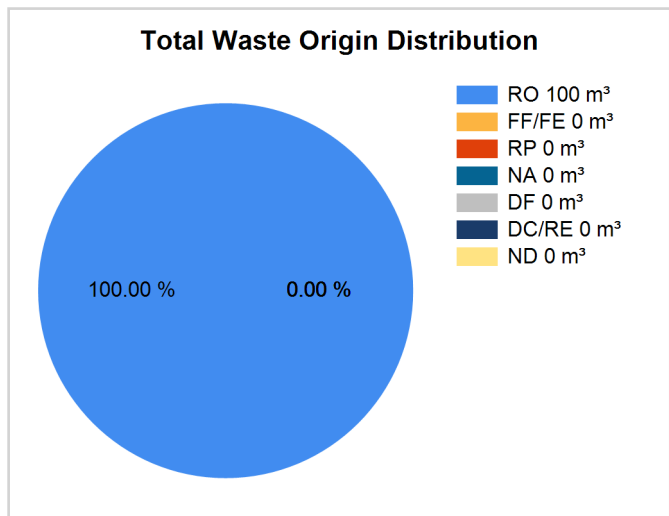
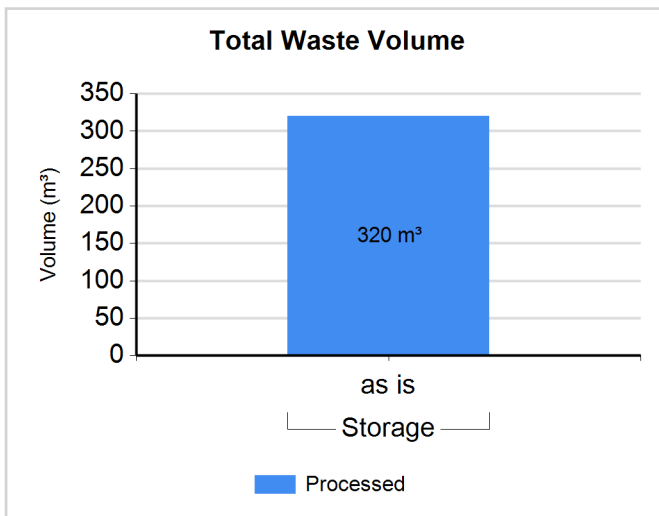
Full Name: National Radioactive Waste Repository (NRWR)

Inventory Reporting Date: December 2009

Waste Matrix Used: PURAM_2

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: Solid_LL

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
Solid_LL	Storage	Y	N	320.000	320.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00

Processing - Conditioning method(s)

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

Site (Data) : Bataapati

Stock of waste as at December 2009

Country: HUNGARY

Reporting Year: 2009

RadioNuclide Inventory in Disposal

RadioNuclide	Activity (GBq)
Cesium (Cs-137)	2.3
Cesium (Cs-134)	0.2
Cobalt (Co-60)	43
Hydrogen (H-3)	20.2
Iron (Fe-55)	1.2
Nickel (Ni-59)	0.3
Nickel (Ni-63)	17.7
Silver (Ag-110m)	1.5

RadioNuclide Inventory in Storage

RadioNuclide	Activity (GBq)
Cesium (Cs-137)	2.3
Cesium (Cs-134)	0.2
Cobalt (Co-60)	43
Hydrogen (H-3)	20.2
Iron (Fe-55)	1.2
Nickel (Ni-59)	0.3
Nickel (Ni-63)	17.7
Silver (Ag-110m)	1.5

Site (Structure) : Püspökszil

Country: HUNGARY

Reporting Year: 2009

Full Name: Radioactive Waste Treatment and Disposal Facility (RWTDF)

Description: The Radioactive Waste Treatment and Disposal Facility is the repository for institutional low and intermediate level radioactive wastes. This repository is a typical near-surface facility, composed of concrete trenches (vaults) and shallow wells for spent sealed sources.

Official Website:

License Holder(s): Public Agency for Radioactive Waste Management Ltd. (PURAM)

Comment # 339: Percentage of Capacity Used

The percentage of disposal facility capacity used takes in to consideration the volume of waste plus losses due to voids, buffer and backfill materials

Waste management facilities that are located at this site:

Facility:	SSRS
Description:	SRS steel lined disposal wells (see comment 7620)
Detailed Facility Description:	The spent sealed radioactive sources were placed into storage tubes covered by shielding tubes.
Waste Packages:	Direct disposal on wells.
Facility Operation:	Public Agency for Radioactive Waste Management Ltd. (PURAM)
Financing:	Central Nuclear Financial Fund (CNFF)

Site (Structure) : Püspökszil

Country: HUNGARY

Reporting Year: 2009

Disposal part of facility SSRS

The following shows disposal status for waste classes and SRS.

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

List SRS?	Yes
List UMMT?	No

Type:	engineered surface		
Facility is modular?	No		
Capacity existing (m3):	2	Capacity planned (m3):	2

Depth (m):	6	Host medium:	sedimentary (other)
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Phase Name	Start Year	End Year	Estimate
site selection	1974	1974	False
design	1974	1974	False
construction	1974	1976	False
commissioning	1976	1977	False
operation	1977	0	False

Comment **# 7620: facility capacity**

The capacity (existing and planned) is 1.6 m3. The repository consists of an array of boreholes lined with stainless steel with an approximate diameter of 10-20 cm and 6 m deep.

The NEWMDB has a limitation that only integer values can be entered for capacity, therefore the value shown for the facility was rounded by the database to 2 m3

Site (Structure) : Püspökszil

Country: HUNGARY

Reporting Year: 2009

Facility:	STORAGE
Description:	Storage for long lived radioactive waste
Detailed Facility Description:	The building is a centralised interim store for institutional radioactive wastes which are not suitable for near-surface disposal. In the basement of the building special wells (boreholes) were prepared for the storage of spent sealed radioactive sources.
Waste Packages:	200 l metal drums and 1,2 m3 metal boxes (container) for wastes, 0,5 - 5 l special tubes for SRS.
Facility Operation:	Public Agency for Radioactive Waste Management Ltd. (PURAM)
Financing:	Central Nuclear Financial Fund (CNFF)

Storage part of facility**STORAGE**

The following shows storage status for waste classes and SRS.

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

List SRS?	Yes
List UMMT?	No

Capacity:	200 m3 for solid waste 2.75 m3 for SRS
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Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
Store	building	2005	No	No	No	No
Well	well	2005	No	No	No	No

Site (Structure) : Püspökszil

Country: HUNGARY

Reporting Year: 2009

Processing part of facility STORAGE

The following shows processing status for waste classes and SRS.

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

Type:	Treatment
Year opened:	2006

Site (Structure) : Püspökszil

Country: HUNGARY

Reporting Year: 2009

Facility:	VAULTS
Description:	Concrete disposal vaults
Detailed Facility Description:	60 vaults with 70 m3 and 6 vaults with 140 m3 capacity.
Waste Packages:	200 l metal drums and 1,2 m3 metal box (container) for wastes
Facility Operation:	Public Agency for Radioactive Waste Management Ltd. (PURAM)
Financing:	Central Nuclear Financial Fund (CNFF)

Disposal part of facility VAULTS

The following shows disposal status for waste classes and SRS.

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

List SRS?	No
List UMMT?	No

Type:	engineered surface		
Facility is modular?	No		
Capacity existing (m3):	5040	Capacity planned (m3):	5040

Depth (m):	6	Host medium:	sedimentary (other)
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Phase Name	Start Year	End Year	Estimate
site selection	1974	1974	False
design	1974	1974	False
construction	1974	1976	False
commissioning	1976	1977	False
operation	1977	0	False
ACTIVITY: upgrading	2001	0	False

Site (Structure) : Püspökszil

Country: HUNGARY

Reporting Year: 2009

Processing part of facility **VAULTS**

The following shows processing status for waste classes and SRS.

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

Type:	Treatment, Conditioning
Year opened:	1977

Site (Data) : Püspökszil

Stock of waste as at December 2009

Country: HUNGARY

Reporting Year: 2009

Site Name: Püspökszil

Full Name: Radioactive Waste Treatment and Disposal Facility (RWTDF)

Inventory Reporting Date: December 2009

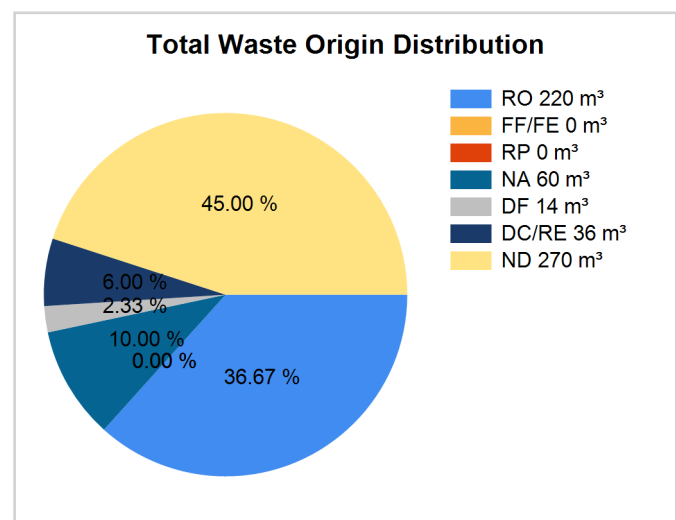
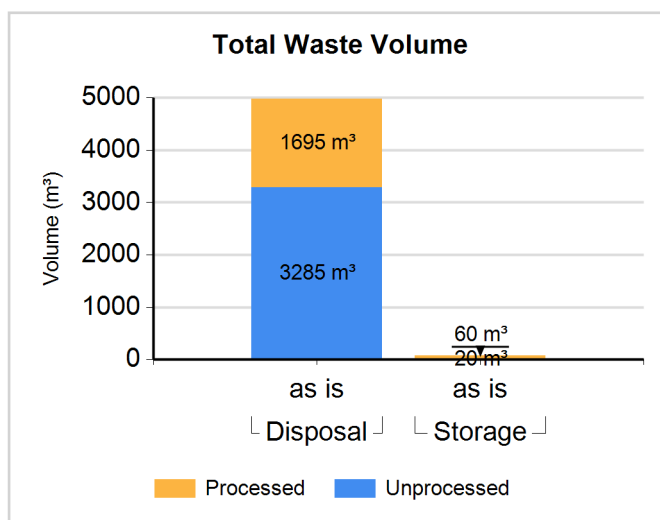
Waste Matrix Used: PURAM_1

Comment # 339: Percentage of Capacity Used

The percentage of disposal facility capacity used takes in to consideration the volume of waste plus losses due to voids, buffer and backfill materials

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: LILW-SL

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
LILW-SL	Disposal	N	N	1330.000	1330.000	20.00	0.00	0.00	20.00	2.00	8.00	50.00
LILW-SL	Disposal	Y	N	685.000	685.000	80.00	0.00	0.00	0.00	0.00	0.00	20.00

Waste Class: LILW-LL

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
LILW-LL	Storage	N	N	20.000	20.000	10.00	0.00	0.00	10.00	5.00	10.00	65.00
LILW-LL	Storage	Y	N	60.000	60.000	10.00	0.00	0.00	10.00	5.00	10.00	65.00
LILW-LL	Disposal	N	N	1955.000	1955.000	20.00	0.00	0.00	20.00	2.00	8.00	50.00
LILW-LL	Disposal	Y	N	1010.000	1010.000	80.00	0.00	0.00	0.00	0.00	0.00	20.00

Site (Data) : Püspökszil

Stock of waste as at December 2009

Country: HUNGARY

Reporting Year: 2009

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

Processing - Conditioning method(s)

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

Spent Sources <=30 years in Storage

Nuclide	Number of Sources/Total Activity of Sources (GBq)			c o n d	u n c o n d	c a t	Total Activity for all Groups (GBq)	Decay Date
	Group I less than or equal 4GBq	Group II more than 4GBq but less than or equal 4E+4GBq	Group III more than 4E+4GBq					
	num/activity	num/activity	num/activity					
Co-60	2846	428		Y	N	Y	2.863E+005	
	2.550E+002	2.860E+005						
Cs-137	1085	215		Y	N	Y	9.646E+003	
	7.160E+002	8.930E+003						
H-3	747	37		Y	N	Y	1.742E+003	
	2.400E+000	1.740E+003						
Ir-192	4134	3		Y	N	Y	1.310E+002	
	1.150E+002	1.600E+001						
Kr-85	312	1		Y	N	Y	6.060E+001	
	5.090E+001	9.700E+000						
Pm-147	111			Y	N	Y	5.000E+000	
	5.000E+000							
Sr-90	201	18		Y	N	Y	3.766E+002	
	3.560E+001	3.410E+002						

Site (Data) : Püspökszil

Stock of waste as at December 2009

Country: HUNGARY

Reporting Year: 2009

Spent Sources <=30 years in Disposition

Nuclide	Number of Sources/Total Activity of Sources (GBq)			c o n d	u n c o n d	c a t	Total Activity for all Groups (GBq)	Decay Date
	Group I less than or equal 4GBq	Group II more than 4GBq but less than or equal 4E+4GBq	Group III more than 4E+4GBq					
	num/activity	num/activity	num/activity					
Co-60	4177	4		Y	Y	Y	2.168E+002	
	8.880E+001	1.280E+002						
Cs-137	1435	61		N	Y	Y	4.436E+003	
	3.060E+002	4.130E+003						
H-3	1114	353		Y	Y	Y	8.467E+004	
	5.680E+002	8.410E+004						
Kr-85	6956	1		Y	Y	Y	6.440E+001	
	5.980E+001	4.600E+000						
Pm-147	603			N	Y	Y	3.900E+000	
	3.900E+000							
Po-210	531			N	Y	Y	0.000E+000	
	0.000E+000							
Sr-90	1137	28		Y	N	Y	2.645E+004	
	2.470E+002	2.620E+004						

Site (Data) : Püspökszil

Stock of waste as at December 2009

Country: HUNGARY

Reporting Year: 2009

Spent Sources > 30 years in Storage

Nuclide	Number of Sources/Total Activity of Sources (GBq)		c o n d	u n c o n d	c a t	Total Activity for all Groups (GBq)	Decay Date
	Group I less than or equal 2 GBq	Group II more than 2GBq					
	num/activity	num/activity					
Am-241	7557	36	Y	N	Y	1.032E+003	
	1.700E+002	8.620E+002					
Am-241	49	36	Y	N	Y	9.718E+003	
	9.780E+001	9.620E+003					
C-14	14		Y	N	Y	2.000E-001	
	2.000E-001						
Pu-238	11		N	Y	Y	1.230E+001	
	1.230E+001						
Pu-238	1	1	Y	N	Y	3.719E+002	
	9.000E-001	3.710E+002					
Pu-239	503		N	Y	Y	1.000E-001	
	1.000E-001						
Pu-239	10	74	Y	N	Y	4.487E+003	
	1.660E+001	4.470E+003					
Ra-226	1371	2	Y	N	Y	9.250E+001	
	6.960E+001	2.290E+001					
Ra-226	22	11	Y	N	Y	1.274E+002	
	2.880E+001	9.860E+001					
Tc-99	60		Y	N	Y	4.000E-003	
	4.000E-003						

Site (Data) : Püspökszil

Stock of waste as at December 2009

Country: HUNGARY

Reporting Year: 2009

Spent Sources > 30 years in Disposition

Nuclide	Number of Sources/Total Activity of Sources (GBq)		c o n d	u n c o n d	c a t	Total Activity for all Groups (GBq)	Decay Date
	Group I less than or equal 2 GBq	Group II more than 2GBq					
	num/activity	num/activity					
Am-241	923	38	N	Y	Y	1.264E+003	
	5.360E+001	1.210E+003					
Am-241	18	32	N	Y	Y	2.494E+003	
	2.440E+001	2.470E+003					
C-14	138		Y	N	Y	1.000E+001	
	1.000E+001						
Pu-238	64		N	Y	Y	1.230E+001	
	1.230E+001						
Pu-238	2	2	N	Y	Y	4.363E+001	
	3.000E-002	4.360E+001					
Pu-239	22	1	N	Y	Y	1.060E+001	
	9.000E-001	9.700E+000					
Ra-226	306		Y	N	Y	4.700E+000	
	4.700E+000						
Ra-226	6	1	N	Y	Y	2.190E+001	
	5.400E+000	1.650E+001					
Tc-99	3030	1	N	Y	Y	1.080E+002	
	1.030E+002	5.000E+000					

Site (Data) : Püspökszil

Stock of waste as at December 2009

Country: HUNGARY

Reporting Year: 2009

RadioNuclide Inventory in Disposal

RadioNuclide	Activity (GBq)
Americium (Am-241)	31.1
Carbon (C-14)	3170
Cesium (Cs-137)	14.8
Cobalt (Co-60)	6440
Hydrogen (H-3)	263000
Iridium (Ir-192)	56.2
Krypton (Kr-85)	33.5
Plutonium (Pu-239)	1390
Promethium (Pm-147)	1430
Radium (Ra-226)	73.1
Strontium (Sr-90)	6200
Technetium (Tc-99)	0.2

RadioNuclide Inventory in Storage

RadioNuclide	Activity (GBq)
Americium (Am-241)	0.03
Carbon (C-14)	728
Cesium (Cs-137)	12.5
Cobalt (Co-60)	4.6
Hydrogen (H-3)	8780
Krypton (Kr-85)	518
Plutonium (Pu-239)	2.26
Promethium (Pm-147)	0.02
Radium (Ra-226)	13.9
Strontium (Sr-90)	4.2

Regulators

Country: HUNGARY

Reporting Year: 2009

Name:	NPHMOS
Full Name:	National Public Health and Medical Officer Service
Divison:	
City or Town:	regional centres
Main Website:	

Name:	HAEA
Full Name:	Hungarian Atomic Energy Authority
Divison:	
City or Town:	Budapest
Main Website:	

Regulations / Laws

Country: HUNGARY

Reporting Year: 2009

Name:	Atomic Law	
Title or Name:	Act No. CXVI. of 1996 on Atomic Energy	
Reference Number:	116/1996 tv.	
Date Promulgated or Proclaimed:	12/18/1996	Law

Name:	PURAM	
Title or Name:	Governmental Decree No. 240/1997. (XII. 18.) Korm., on the establishment of the organisation designated for implementing disposing of radioactive waste disposal and spent fuel, as well as decommissioning of nuclear installations, and on the financial source of performing its tasksactivities.	
Reference Number:	240/1997 korm.	
Date Promulgated or Proclaimed:	12/18/1997	Regulation

Name:	Exemption	
Title or Name:	Governmental Decree No. 124/1997. (VII. 18.) Korm., on radioactive materials as well as equipment generating ionising radiation, exempted from the scope of the Atomic Energy Act No. CXVI of 1996.	
Reference Number:	124/1997 korm.	
Date Promulgated or Proclaimed:	7/18/1997	Regulation

Name:	ActLevels	
Title or Name:	Order of the Minister of Public Welfare No. 23/1997. (VII. 18.) NM defining the exemption levels (activity concentrations and activities cf. ICRP-60) of radionuclides.	
Reference Number:	23/1997 NM	
Date Promulgated or Proclaimed:	7/18/1997	Regulation

Name:	RadProt	
Title or Name:	Order of the Minister of Health No. 16/2000. (VI. 8.) EüM on the execution of certain provisions of the Act No. CXVI. of 1996 on Atomic Energy associated with radiation protection.	
Reference Number:	16/2000 EüM	
Date Promulgated or Proclaimed:	6/8/2000	Regulation

Regulations / Laws

Country: HUNGARY

Reporting Year: 2009

Name:	SiteSelect		
Title or Name:	Order of the Minister of Industry, Trade and Tourism No. 62/1997(XI.26.) IKIM on the Geological and Mining Requirements for the Siting and Planning of Nuclear Facilities and Radioactive Waste Disposal Facilities.		
Reference Number:	62/1997 IKIM		
Date Promulgated or Proclaimed:	11/26/1997	Regulation	

Name:	NuclFund		
Title or Name:	Order of the Minister of Justice No. 14/2005 (VII.25.) IM on the operation and administration of the Central Nuclear Financial Fund.		
Reference Number:	14/2005 IM		
Date Promulgated or Proclaimed:	7/25/2005	Regulation	

Name:	HAEA		
Title or Name:	Government Decree 114/2003 (VII.29.) on the Scope of Duty, Authority and Jurisdiction of Imposing Penalty of the Hungarian Atomic Energy Authority, and on the Activities of the Atomic Energy Council		
Reference Number:	114/2003 Korm.		
Date Promulgated or Proclaimed:	7/29/2003	Regulation	

Name:	St&Disp		
Title or Name:	Decree of the Minister of Health, Social and Family Affairs 47/2003 (VIII.8.) on some aspects of the interim storage and final disposal of radioactive waste and on the radiological aspects of radioactive materials arising from industrial activities and naturally occurring radioactive materials		
Reference Number:	47/2003 ESzCsM		
Date Promulgated or Proclaimed:	8/8/2003	Regulation	

Milestones

Country: HUNGARY

Reporting Year: 2009

Start Year or Reference Year:	2009	End Year:	
Description of Milestone:			
By the end of 2009 1600 drums (320 m ³) are stored in the buffer storage in Bataapati. The access tunnels and a double loop-like structure of the connecting tunnels around the future disposal area are completed.			
Start Year or Reference Year:	2009	End Year:	
Description of Milestone:			
The demonstration phase of the safety enhancement programme was completed successfully by 2009 in the Radioactive Waste Treatment and Disposal Facility at Puspokszilag. This phase had to test the recovery technology (removing of certain long-lived and high activity spent sources from the vaults) and collect the necessary information and experience.			
Start Year or Reference Year:	2008	End Year:	
Description of Milestone:			
On the basis of the pre-construction safety assessment the authority issued the construction licence of the Bataapati LILW repository in May 2008. The operation licence for the surface part entered into force in October 2008 allowing for the temporary storage in the technology building. The name of the new facility in Bataapati is National Radioactive Waste Repository.			
Start Year or Reference Year:	2007	End Year:	
Description of Milestone:			
The competent authority issued the Environmental License for the Bataapati LILW repository which entered into legal force on 17 October 2007.			
Start Year or Reference Year:	2007	End Year:	
Description of Milestone:			
Construction licensing of the Bataapati LILW repository started on 8 November 2007 when the necessary documentation based on safety assessment (Pre- construction Safety Assessment) was handed to the competent authority.			
Start Year or Reference Year:	2007	End Year:	
Description of Milestone:			
The authority issued the operation license for the new modules (No. 12-16) of the Spent Fuel Interim Storage in 2007.			

Milestones

Country: HUNGARY

Reporting Year: 2009

Start Year or Reference Year:	2006	End Year:	
Description of Milestone:			
<p>In parallel with on-going underground geological investigations in Bataapáti the following additional activities started in 2006.</p> <p>a) Preliminary activities (landscaping, planning etc.) for aboveground infrastructures of the future LILW repository.</p> <p>b) Preparation of licensing documentations of the future LILW repository.</p>			
Start Year or Reference Year:	2006	End Year:	
Description of Milestone:			
<p>The first part of the environmental licensing procedure was accomplished in January 2006 when the regionally competent authority accepted the Preliminary Environmental Impact Study giving green light to the second part of the procedure: the compilation of the Environmental Impact Assessment.</p>			
Start Year or Reference Year:	2006	End Year:	
Description of Milestone:			
<p>In 2006 the Governmental Decree 257/2006. (XII.15.) declared that the Bataapáti LILW repository project is an issue of preferential importance and as such it enjoys certain priorities in licensing and legal procedures.</p>			
Start Year or Reference Year:	2006	End Year:	
Description of Milestone:			
<p>In 2006 new activities began in the framework of the second phase of the safety enhancement program (approved in December 2005) in the Radioactive Waste Treatment and Disposal Facility at Püspökszilágy. Plans were prepared and approved for opening 4 vaults (each of 70m³ containing mainly historical waste) and for retrieving, selection, reconditioning and repackaging waste.</p>			
Start Year or Reference Year:	2006	End Year:	
Description of Milestone:			
<p>The modules 12-16 of the Spent Fuel Interim Storage Facility (II. phase of the enlargement of the SFISF) became practically accomplished in 2006. The final installation and the start of operation are the tasks of the year 2007.</p>			
Start Year or Reference Year:	2005	End Year:	
Description of Milestone:			
<p>After the strongly supportive result of a local referendum held in the village of Bataapáti, the Hungarian Parliament expressed its approval in principal for the construction of the repository</p>			

Milestones

Country: HUNGARY

Reporting Year: 2009

Start Year or Reference Year:	2004	End Year:	2006
Description of Milestone:			
LILW: The programme of further investigations of B́ataaṕati (Üveghuta) site (construction of two paralel inclined shafts in order to determine the exact location of the repository and its safety zone) was approved by the competent minister in December 2004.			
Start Year or Reference Year:	2003	End Year:	
Description of Milestone:			
HLW: start of investigations to select a site of an underground laboratory in the Mecsek Mountains for the exploration of the Boda Claystone Formation.			
Start Year or Reference Year:	2002	End Year:	2005
Description of Milestone:			
LILW: Safety upgrading program (Phase I) for the Radioactive Waste Treatment and Disposal Facility in Püspökszilágy (based on previous safety assessments).			
Start Year or Reference Year:	2001	End Year:	2003
Description of Milestone:			
LILW: Detailed geological and hydrogeological survey from the surface as well as safety assessment of B́ataaṕati (Üveghuta) site. The geological authority stated that the site fulfils all the requirements formulated in the relevant decree: thus, from the geological point of view it is suitable for the disposal of LILW.			
Start Year or Reference Year:	2000	End Year:	
Description of Milestone:			
LILW: Collection of existing data and preparation of a preliminary safety assessment to establish further investigation in B́ataaṕati (Üveghuta).			
Start Year or Reference Year:	2000	End Year:	2001
Description of Milestone:			
HLW: Elaboration of a national policy for HLW management, aiming at the establishment of a national strategy.			
Start Year or Reference Year:	1999	End Year:	
Description of Milestone:			
LILW: IAEA WATRP Mission confirms the results of the investigation and recommends further exploration of B́ataaṕati (Üveghuta).			

Milestones

Country: HUNGARY

Reporting Year: 2009

Start Year or Reference Year:	1998	End Year:	1999
Description of Milestone:			
HLW: Country-wide screening for a potential site.			
Start Year or Reference Year:	1997	End Year:	1998
Description of Milestone:			
LILW: Exploration of the suitability of the potential site Bátaapáti (Üveghuta).			
Start Year or Reference Year:	1996	End Year:	
Description of Milestone:			
LILW: Decision to investigate the Bátaapáti (Üveghuta) site for a subsurface repository in granite, while keeping the Udvari site for a surface repository stand-by.			
Start Year or Reference Year:	1993	End Year:	1996
Description of Milestone:			
LILW: A National Program was launched to select a site for a repository for NPP waste (countrywide screening and regional screening for potential sites).			
Start Year or Reference Year:	1993	End Year:	1999
Description of Milestone:			
HLW: Geological exploration 1100 m below surface in an underground research object in the Boda claystone formation.			
Start Year or Reference Year:	1989	End Year:	1993
Description of Milestone:			
HLW: Preliminary geological investigation of the Boda claystone formation.			
Start Year or Reference Year:	1986	End Year:	1988
Description of Milestone:			
LILW: A disposal site for NPP waste was investigated in Ófalu, but the licence for construction was not granted by the Hungarian authorities.			

Milestones

Country: HUNGARY

Reporting Year: 2009

Start Year or Reference Year:	1976	End Year:	1976
Description of Milestone:			
LILW: Licencing of the Radioactive Waste Treatment and Disposal Facility in Püspökszilágy for institutional waste.			

Start Year or Reference Year:	1960	End Year:	1960
Description of Milestone:			
LILW: Start of operation of an interim storage in Solymár.			

Policies

Country: HUNGARY

Reporting Year: 2009

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: HUNGARY

Reporting Year: 2009

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)?	Yes

Policies

Country: HUNGARY

Reporting Year: 2009

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)	No
Q56	Quality Assurance (QA)	No
Q57	Safety Assessment (SA)	Yes - All
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
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?	No
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	No

Policies

Country: HUNGARY

Reporting Year: 2009

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	In your Country are there any waste processing facilities at the same location where the waste is generated?	Yes
Q81	In your Country are there any centralized waste processing facilities?	No
Q82	In your Country are there 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)?	No
Q124	Has your country accepted any wastes or spent fuel from another country for processing (reprocessing for fuel)?	No

Policies

Country: HUNGARY

Reporting Year: 2009

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)?	Yes
Q115	If the answer was yes, are any registries used only for disused/spent SRS?	No
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?	Yes
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?	Yes
Q103	Does your Country have plans to implement dedicated disposal facilities for spent SRS?	Yes
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)?	No
Spent Fuel		(Yes;No)
Q105	Does your Country have laws or Regulations restricting either the import or export of spent fuel?	No

Country: HUNGARY

Reporting Year: 2009

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? Yes - Some

Q113 Does your Country require a time frame for the decommissioning of non-nuclear fuel cycle facilities once these facilities cease operation? No

Future Outlook

Country: HUNGARY

Reporting Year: 2009

Data not available.

Future Outlook

Country: HUNGARY

Reporting Year: 2009

Data not available.

Future Outlook

Country: HUNGARY

Reporting Year: 2009

Data not available.

Future Outlook

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Reporting Year: 2009

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Reporting Year: 2009

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