Country Waste Profile Report for

THAILAND

Reporting Year: 2006

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: THAILAND Reporting Year: 2006

Waste Class Matrix: **IAEA Def.** This country does use the IAEA Scheme: No

Description: The Agency's standard matrix

	Distribution %		
Waste Class Name	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

Waste Class Matrix: **Thailand**

Description: Thailand does not have any HLW even though HLW is part of the classification scheme. The classification scheme is specified in the Science and Technology Ministerial Regulation.

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

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			
Processed means:		x	x	x

Groups Overview

Country: THAILAND Reporting Year: 2006

Reporting Group:	**National**
Inventory Reporting Date:	December 2006
Waste Matrix Used:	Thailand
Description:	In this reporting group, a single theoretical site is defined. The waste quantities reported are the totals for actual sites located around Thailand. See the comment regarding inventory reporting date.

Site Name	Facility Name	Facilities Defined		
All Sites	OAP-SF1		storage	
	OAP-SF2		storage	
	OAP-SRS		storage	
	OAP-WPF	processing		

Comment **# 408: VLLW**

VLLW is generated but not released due to a lack of regulation regarding release. It is not segregated from LLW and therefore is reported in the NEWMDB as part of LILW-SL waste

Site (Structure) : All Sites

Country: THAILAND Reporting Year: 2006

Full Name: A single theoretical site is defined to facilitate reporting to the NEWMDB. The waste quantities reported are the totals for actual sites located around Thailand, including those at the central facility located at the OAP, Bangkok.

Description:

Official Website:

License Holder(s): TINT / Radioactive Waste Management Center / Thailand Institute of Nuclear Technology (TINT)

TINT / Radioactive Waste Management Center / Thailand Institute of Nuclear Technology (TINT)

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Waste management facilities that are located at this site:

Facility:	**OAP-SF1**
Description:	Storage Facility 1 at the OAP in Bangkok, for the storage of SRS which are conditioned and some are not conditioned.

Storage part of facility **OAP-SF1**

The following shows storage status for waste classes and SRS.

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

List SRS?	Yes
List UMMT?	No

Capacity:	310 cubic metre

Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
OAP-SF1	building	1996	No	No	No	Yes

Site (Structure) : All Sites

Country: THAILAND Reporting Year: 2006

Facility:	**OAP-SF2**
Description:	Storage Facility 2 at the OAP in Bangkok, capacity 292.5m3, for Radioisotope (RI) wastes which are already processed.

Storage part of facility **OAP-SF2**

The following shows storage status for waste classes and SRS.

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

List SRS?	No
List UMMT?	No

Capacity:	292.5 cubicmetre, for the storage of the RI wastes, for the conditioned and non-conditioned waste-drums (200 litre).

Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
OAP-SF2	building	1999	No	No	No	No

Site (Structure) : All Sites

Country: THAILAND Reporting Year: 2006

Facility:	**OAP-SRS**
Description:	for storage of the conditioned SRS at the OAP in Bangkok,

Storage part of facility **OAP-SRS**

The following shows storage status for waste classes and SRS.

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

List SRS?	Yes
List UMMT?	No

Capacity:	15 drums (200 litre) for conditioned Radiumand 2 stainless steel container for condtitioned Cobalt-60 (420 Ci) and the condtitioned Ra-226(4 Ci) irradiator.

Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
SRS	cask	2001	No	No	No	Yes

Comment **# 7366: Conditioning of SRS under the support of IAEA**

The first Radium-226 conditioning operation was performed under the support of the IAEA in year 2001. The total amount of Ra-226 was 4,823.6 mg(948 pieces). The second Radium-226 conditioning operation has been planned to operate in year 2004. For the conditioning of Co-60 source (420 ci) from the Radiological accident in Samutprakran province, Thailand in year 2000, was also supported by IAEA and successfully operated in year 2002.

Site (Structure) : All Sites

Country: THAILAND Reporting Year: 2006

Facility:	**OAP-WPF**
Description:	Waste Processing Facility at the Office for Atoms for Peace, Bankgok, liquid waste treatment plant (chemical precipitation) since 1965, incinerator (20 kg/day) since 1992, compactor since 1992.

Processing part of facility **OAP-WPF**

The following shows processing status for waste classes and SRS.

Waste CLass	Actual	Planned
VLLW	No	No
LILW-SL	No	No
LILW-LL	No	No
HLW	No	No

Type:	Treatment, Conditioning
Year opened:	1965

Site (Data) : All Sites

Stock of waste as at December 2006

Country: THAILAND Reporting Year: 2006

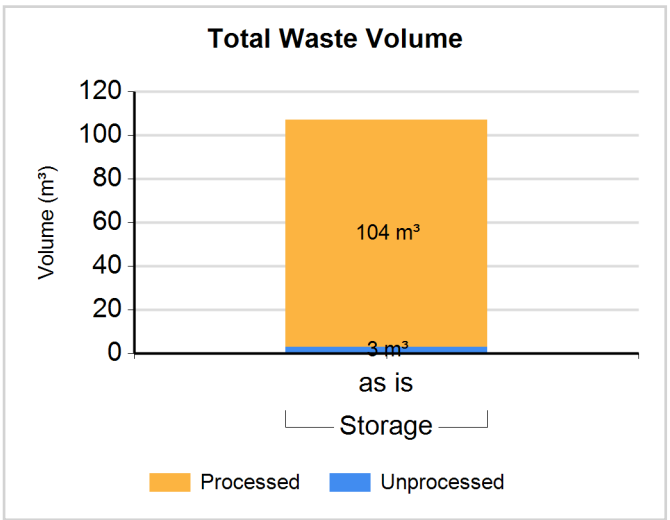
Site Name: **All Sites**

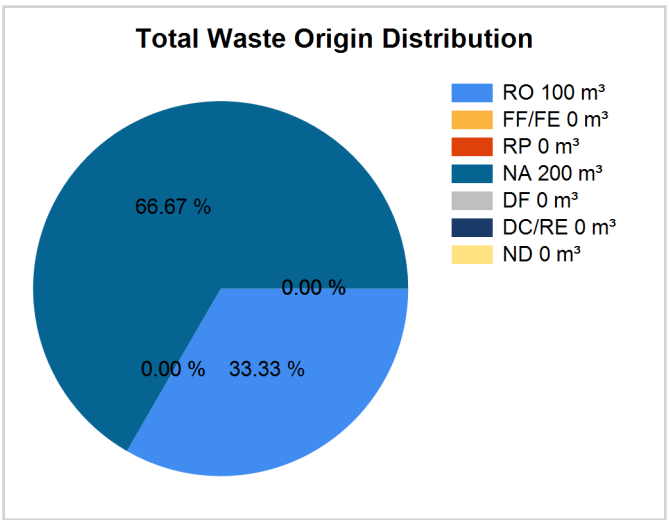
Full Name: A single theoretical site is defined to facilitate reporting to the NEWMDB. The waste quantities reported are the totals for actual sites located around Thailand, including those at the central facility located at the OAP, Bangkok.

Inventory Reporting Date: December 2006 Waste Matrix Used: Thailand

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	Storage / OAP-SF2	N	N	3.000	3.000	90.00	0.00	0.00	10.00	0.00	0.00	0.00
LILW-SL	Storage / OAP-SF2	Y	N	100.000	100.000	10.00	0.00	0.00	90.00	0.00	0.00	0.00
LILW-SL	Storage / OAP-SRS	Y	N	4.000	4.000	0.00	0.00	0.00	100.00	0.00	0.00	0.00

Comment **# 6851: The additional characteristics of the waste**

Unprocessed Waste are as follows:
1. Spent ion-exchange resin from the OAP Research Reactor, have been kept in 50 drums (50 litre), total about 2.5 cubic-metre
2. The iron-steel contaminated with Cs-137 from the Steel Factories, (products from the melting of scrap metal from East Europe), total volume about 2.5 cubic-metre

Site (Data) : All Sites

Stock of waste as at December 2006

Country: THAILAND Reporting Year: 2006

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
Compaction	N	N	Same	N
Decontamination	N	N	Same	N
Evaporation	Y	N		N
Incineration	N	N	Same	N
Ion Exchange	N	N	Same	N
Size Reduction	Y	N		N

Processing - Conditioning method(s)

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

Spent Sources <=30 years in Storage

Data available but will not be reported.

Attachment **#840: SRS Data (LE30)**

SRS thailand.xls

SRS inventory (as of January 2004)

Site (Data) : All Sites

Stock of waste as at December 2006

Country: THAILAND Reporting Year: 2006

Spent Sources > 30 years in Storage

Nuclide	Number of Sources/Total Activity of Sources (GBq)		cond	uncond	cat	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		2	N	Y	N	3.990E+002	
		3.990E+002					
Am-241		17	N	Y	Y	3.870E+002	
		3.870E+002					
Am-241	293		N	Y	Y	2.210E+002	
	2.210E+002						
Ni-63	33		N	Y	Y	1.338E+001	
	1.338E+001						
Ra-226		948	Y	N	Y	1.920E+003	
		1.920E+003					
Ra-226	5		N	Y	Y	8.000E-001	
	8.000E-001						
Ra-226	363		N	Y	Y	2.560E+002	
	2.560E+002						

Attachment **#841: SRS Data (GT30)**

SRS thailand.xls

SRS inventory (as of January 2004)

Regulators

Country: THAILAND Reporting Year: 2006

Name:	**OAP**
Full Name:	Office of Atoms for Peace
Divison:	Bureau of Radiation Safety Regulation, Bureau of Nuclear Safety Regulation,
City or Town:	Bangkok
Main Website:	

Comment **# 6848: Wastes that are regulated by the Regulator**

Matrix Thailand - HLW, LILW-LL, LILW-SL, VLLW (exempt)
Note: At present, there is no HLW. The RW classifications need to be revised.

Regulations / Laws

Country: THAILAND Reporting Year: 2006

Name:	**AEPA 2504**		
Title or Name:	Atomic Energy for Peace Act, B.E 2504 (B.E = Buddishm Era) Ministerial Regulation on Waste Management B.E. 2546 (2003)		
Reference Number:	Ministerial Regulation BE 2546 Art.1-13		
Date Promulgated or Proclaimed:		4/1/2003	Regulation

Comment **# 6849: Wastes that are regulated by the Regulation**

Matrix Thailand - HLW, LILW-LL, LILW-SL, VLLW (exempt)
Note: At present, there is no HLW

Milestones

Country: THAILAND Reporting Year: 2006

Start Year or Reference Year:	2008	End Year:	2010
Description of Milestone:			
New Milestone: The Radioactive Waste Management Center will be re-located at the new site, Ongkharak district, Nakhon Nayok province. The processing and incinerating facilities will be constructed during the 3 year plan. The Project Schedule during year 2008-2010 Year Items 2008 Design of Storage & Incineration Systems 2009 Construction of Storage & Incineration Systems 2010 Operation of Storage & Incineration Systems			

Start Year or Reference Year:	2005	End Year:	2007
Description of Milestone:			
The Atomic Energy for Peace Act B.E.2504 is being revised to match the development of Nuclear Technology in the country.			

Start Year or Reference Year:	2004	End Year:	2006
Description of Milestone:			
The construction of the Centralized Waste Processing and Storage Facilities at the new site, Ongkarak district, Nakhonnayok province has been delayed, due to the financial problem.			

Start Year or Reference Year:	1989	End Year:	2003
Description of Milestone:			
The Thai cabinet had a resolution in 1989 to relocate the Nuclear Research Center, comprising the research reactor, waste management facility, isotope production facility and other nuclear facilities in OAEP to more appropriate and safe location due to it is located near the Bangkok airport. The Prequalified Bidding for the new nuclear research center was perfomed in 1995. The final Bidding was done in 1996. In 1997, the OAEP signed contract with General Atomics to design and establish the new Nuclear Research Center at Ongkarak district, Nakhonnayok Province, 60 km away from OAEP. In year 2003, the OAEP got the construction permit for the new Research reactor.			

Policies

Country: THAILAND Reporting Year: 2006

National Systems

	Policy	(Yes;Partially;No)
Q14	Has your Country implemented a national policy for radioactive waste management?	No

	Strategies	(Yes;Partially;No)
Q15	Has your country developed strategies to implement a national policy?	No

	Requirements	(Yes;Partially;No)
Q17	identified the parties involved in the different steps of radioactive waste management	Partially
Q18	specified a rational set of safety, radiological and environmental protection objectives	Partially
Q19	implemented a mechanism to identify existing and anticipated radioactive wastes	Partially
Q20	implemented controls over radioactive waste generation	Partially
Q21	identified available methods and facilities to process, store and dispose of radioactive waste on an appropriate time-scale	Partially
Q22	taken into account interdependencies among all steps in radioactive waste generation and management	Partially
Q23	implemented appropriate research and development to support the operational and regulatory needs	Partially
Q24	implemented a funding structure and the allocation of resources that are essential for radioactive waste management	Partially
Q25	implemented formal mechanisms for disseminating information to the public and for public consultation	Partially

	Responsibilities	(Complete;Incomplete)
Q28	establish and implement a legal framework for the management of radioactive waste	Incomplete
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.	Incomplete
Q30	define the responsibilities of waste generators and operators of waste management facilities	Incomplete
Q31	provide for adequate resources	Incomplete
Q33	enforce compliance with regulatory requirements	Incomplete
Q34	implement the licensing process	Incomplete
Q35	advise the government	Incomplete
Q37	identify an acceptable destination for the radioactive waste	Incomplete
Q114	comply with legal requirements	Incomplete

Policies

Country: THAILAND Reporting Year: 2006

	Activities	(Yes;Partially;No)
Q43	perform safety and environmental impact assessments for radioactive waste management facilities	Partially
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	Partially
Q46	establish and implement a quality assurance programme for the radioactive waste generated or its processing, storage and disposal	No
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	No
Q49	collect, analyze and, as appropriate, share operational experience to ensure continued safety improvements in radioactive waste management	Partially
Q50	conduct or otherwise ensure appropriate research and development to support operational needs in radioactive waste management	Partially

	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"?	No
Q129	Has your country ever used a "case-by-case" approach to clearing radioactive wastes (excluding spent/disused sealed radioactive sources)?	No
Q130	Has your country ever used clearance levels to dispose of, reuse or recycle radioactive waste as non-radioactive waste or as a non-radioactive resource (excluding spent/disused sealed radioactive sources)?	No

Policies

Country: THAILAND Reporting Year: 2006

Disposal Facilities

	Licensing	(Yes - All;Yes - Some;No)
Q53	Environmental Assessment (EA)	No
Q54	Environmental Impact Statement (EIS)	No
Q55	Performance Assessment (PA)	No
Q56	Quality Assurance (QA)	No
Q57	Safety Assessment (SA)	No

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

	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?	No

Policies

Country: THAILAND Reporting Year: 2006

Processing/Storage

	Policies/Procedures	(Yes;No)
Q73	waste sorting/segregation	Yes
Q74	waste minimization	No
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)	No

	Implementation	(Yes;No)
Q80	In your Country are there any waste processing facilities at the same location where the waste is generated?	No
Q81	In your Country are there any centralized waste processing facilities?	Yes
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

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?	Yes
Q87	Are there regional-level registries (one or more)?	No
Q90	Are there local-level registries (one or more)?	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?	No

	Release / Disposal	(Yes;No)
Q99	Does your Country have any regulations to free-release spent sealed radioactive sources (SRS)?	No
Q100	Has your Country disposed of spent SRS in existing disposal facilities for LILW or HLW waste?	No
Q101	Does your Country plan to dispose of spent SRS in existing or planned disposal facilities for LILW or HLW waste?	No
Q102	Has your Country implemented dedicated disposal facilities for spent SRS?	No
Q103	Does your Country have plans to implement dedicated disposal facilities for spent SRS?	No

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

Policies

Country: THAILAND Reporting Year: 2006

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 - Some

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

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

Future Outlook

Country: THAILAND Reporting Year: 2006

Data not available.

Future Outlook

Country: THAILAND Reporting Year: 2006

Data not available.

Future Outlook

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Data not available.

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