



Country Waste Profile Report for INDONESIA Reporting Year: 2013

*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: INDONESIA

Reporting Year: 2013

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: **National**

Yes

Description: LLW mainly for contaminated waste. ILW mainly for DSRS, activated and fission product from radioisotope production. HLW only for spent fuels.

Waste Class Name	Distribution %			
	VLLW	LLW	ILW	HLW
LLW	30.0	70.0	0.0	0.0
ILW	0.0	0.0	100.0	0.0
HLW	0.0	0.0	0.0	100.0

Attachment **#2173: Waste Matrix**

BDI_uu10_eng.pdf

The classification of radioactive waste in Indonesia is stated in the Act 10/1997 (Nuclear Energy) Chapter VI Article 22. Radioactive waste is classified into LLW, ILW and HLW. Also, the classification is stipulated more detail in Government Regulation No

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

This country uses the IAEA standard definition:

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

Groups Overview

Country: INDONESIA

Reporting Year: 2013

Reporting Group:	Serpong			
Inventory Reporting Date:	December 2013			
Waste Matrix Used:	National			
Description:	Reporting group located at Radioactive Waste Management Development Center, Serpong Research Establishment, BATAN			
	Site Name	Facility Name	Facilities Defined	
	RWTC	HRW-IS	storage	
		IS	storage	
		RWI	processing	

Site (Structure) : RWTC

Country: INDONESIA

Reporting Year: 2013

Full Name: Radioactive Waste Technology Center, BATAN

Description:

Official Website:

License Holder(s): Radioactive Waste Technology Center, BATAN

Waste management facilities that are located at this site:

Facility:	HRW-IS					
Description:	Interim Storage for high radiation waste (HRW). The HRW mainly are activated and fission products that generated from the Isotope Production Center. This facility is a place to delay and decay of the HRW for further treatment.					
Storage part of facility		HRW-IS				
The following shows storage status for waste classes and SRS.						
Waste Class	Actual	Planned				
LLW	Yes	No				
ILW	Yes	No				
HLW	No	No				
List SRS?	Yes					
List UMMT?	No					
Capacity:	Consists of 2 type of storages, pool and well storages. The pool type has 3 pools, each has a 3mx4mx3.6m dimension. The well storage has 20 wells and each well can contain 6 x 60 litres waste containers.					
Types of Storage Units						
Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
Pool	pool	1997	No	No	No	Yes
Well	well	1997	No	No	No	Yes

Site (Structure) : RWTC

Country: INDONESIA

Reporting Year: 2013

Facility:	IS					
Description:	The IS facility is for storing conditioned waste before disposal. There are 2 modules: IS-1 and IS-2.					
Storage part of facility						
IS						
The following shows storage status for waste classes and SRS.						
Waste Class	Actual	Planned				
LLW	Yes	No				
ILW	Yes	No				
HLW	No	No				
List SRS?	Yes					
List UMMT?	No					
Capacity:	Design capacity of each module is 1500 units of 200L drum and 500 units of 950L/350L shell.					
Types of Storage Units						
Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
IS-1	building	1989	No	No	Yes	Yes
IS-2	building	2003	No	No	Yes	No

Site (Structure) : RWTC

Country: INDONESIA

Reporting Year: 2013

Facility:	RWI												
Description:	Radioactive Waste Installation (RWI) is installation for processing radioactive waste such as, volume reduction and conditioning.												
Processing part of facility RWI													
The following shows processing status for waste classes and SRS.													
<table border="1"><thead><tr><th>Waste Class</th><th>Actual</th><th>Planned</th></tr></thead><tbody><tr><td>LLW</td><td>No</td><td>No</td></tr><tr><td>ILW</td><td>No</td><td>No</td></tr><tr><td>HLW</td><td>No</td><td>No</td></tr></tbody></table>	Waste Class	Actual	Planned	LLW	No	No	ILW	No	No	HLW	No	No	
Waste Class	Actual	Planned											
LLW	No	No											
ILW	No	No											
HLW	No	No											
Type:	Treatment, Conditioning												
Year opened:	1989												

Site (Data) : RWTC

Stock of waste as at December 2013

Country: INDONESIA

Reporting Year: 2013

Site Name: RWTC

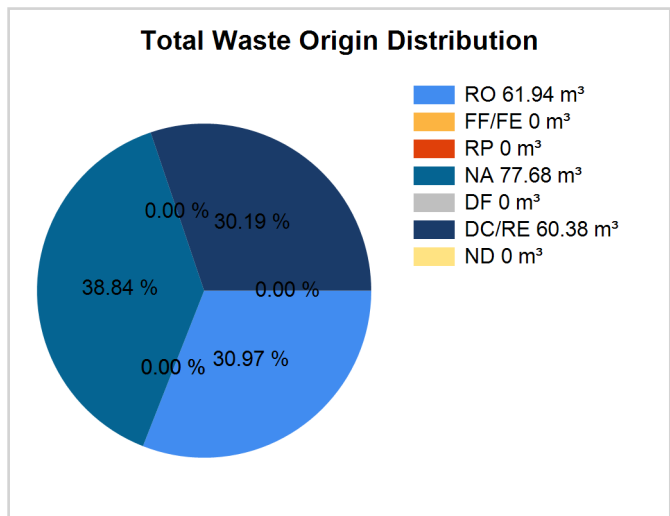
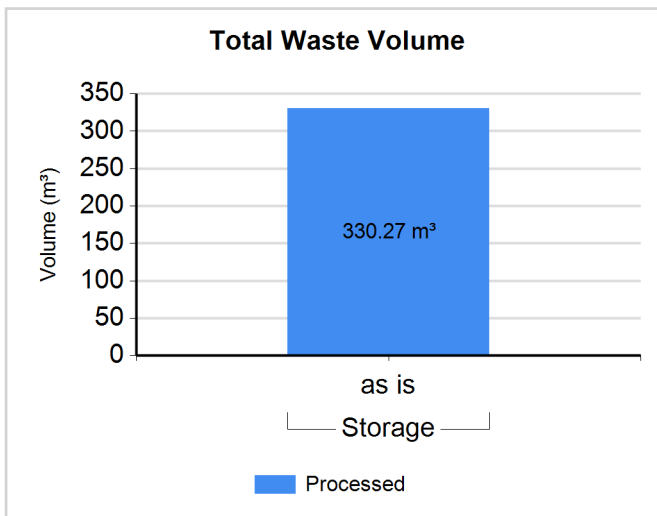
Full Name: Radioactive Waste Technology Center, BATAN

Inventory Reporting Date: December 2013

Waste Matrix Used: National

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: LLW

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
LLW	Storage	Y	Y	246.470	246.470	61.94	0.00	0.00	38.06	0.00	0.00	0.00

Waste Class: ILW

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m³)	Volume "as dispo" (m³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
ILW	Storage	Y	Y	83.800	83.800	0.00	0.00	0.00	39.62	0.00	60.38	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	Y	Same	N
Compaction	N	N	Same	N
Decontamination	N	N	Same	N
Evaporation	N	N	Same	N
Incineration	N	N	Same	N

Site (Data) : RWTC

Stock of waste as at December 2013

Country: INDONESIA

Reporting Year: 2013

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
Vitrification	N	Y	Same	N

Site (Data) : RWTC

Stock of waste as at December 2013

Country: INDONESIA

Reporting Year: 2013

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					
Cd-109	13			Y	N	Y	7.567E-001	2013.12
	7.567E-001							
Cf-252	8			Y	N	Y	1.651E+000	2013.12
	1.651E+000							
Cm-244	5	2		Y	N	Y	3.419E+001	2013.12
	5.975E+000	2.821E+001						
Co-60	146	125	10	Y	N	Y	8.377E+005	2013.12
	1.144E+001	3.174E+005	5.202E+005					
Cs-137	288	145	3	Y	N	Y	1.732E+005	2013.12
	1.980E+002	2.898E+004	1.440E+005					
Fe-55	25			Y	N	Y	1.234E+001	2013.12
	1.234E+001							
Ge-68	1			Y	N	Y	3.900E-003	2013.12
	3.900E-003							
Ir-192	286	363		Y	N	Y	3.542E+004	2013.12
	1.742E+002	3.524E+004						
Kr-85	26	70		Y	N	Y	3.249E+004	2013.12
	7.154E+001	3.242E+004						
Pm-147	40	32		Y	N	Y	3.891E+002	2013.12
	4.516E+001	3.439E+002						
Se-75	6	5		Y	N	Y	2.574E+001	2013.12
	7.280E-002	2.567E+001						
Sr-90	299			Y	N	Y	1.715E+002	2013.12
	1.715E+002							

Site (Data) : RWTC

Stock of waste as at December 2013

Country: INDONESIA

Reporting Year: 2013

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	46	55	Y	N	Y	4.161E+003	2013.12
	1.421E+001	4.146E+003					
Am-241	8		Y	N	Y	1.008E+001	2013.12
	1.008E+001						
Ra-226	936	27	Y	N	Y	1.677E+002	2013.12
	1.091E+002	5.867E+001					

Regulators

Country: INDONESIA

Reporting Year: 2013

Name:	NERA
Full Name:	Nuclear Energy Regulatory Agency
Divison:	-
City or Town:	Jakarta
Main Website:	

Regulations / Laws

Country: INDONESIA

Reporting Year: 2013

Name:	Act10/1997	
Title or Name:	Act No. 10/1997 on Nuclear Energy	
Reference Number:	Act No.10 year 1997	
Date Promulgated or Proclaimed:	4/10/1997	Law

Name:	GR 27/2002	
Title or Name:	The Government Regulation on Radioactive Waste Management	
Reference Number:	GR No. 27 year: 2002	
Date Promulgated or Proclaimed:	5/13/2002	Regulation

Name:	GR 26/2002	
Title or Name:	The Government Regulation on Safety for Transportation of Radioactive Substance	
Reference Number:	GR No. 26 Year 2002	
Date Promulgated or Proclaimed:	5/13/2002	Regulation

Name:	GR 61/2013	
Title or Name:	The Government Regulation No. 61/2013 on Radioactive Waste Management. The GR stipulates the classification of radioactive waste, roles of BATAN as executor of radioactive waste management, obligations of waste producers, and stages of radioactive waste management consisting of: gathering and grouping, processing and storage, transport and disposal, recording and reporting. The GR also regulates the reuse and recycle of DSRS, management of spent nuclear fuel, transboundary movements and adminis	
Reference Number:	GR No. 61 Year 2013	
Date Promulgated or Proclaimed:	9/12/2013	Regulation

Country: INDONESIA

Reporting Year: 2013

Policies

Country: INDONESIA

Reporting Year: 2013

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?	Partially
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	Partially
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	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.	Complete
Q30	define the responsibilities of waste generators and operators of waste management facilities	Complete
Q31	provide for adequate resources	Incomplete
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: INDONESIA

Reporting Year: 2013

Activities		(Yes;Partially;No)
Q43	perform safety and environmental impact assessments for radioactive waste management facilities	Yes
Q44	ensure adequate radiation protection for workers, the general public and the environment	Yes
Q45	ensure suitable staff, equipment, facilities, training and operating procedures are available to perform the safe radioactive waste management steps	Yes
Q46	establish and implement a quality assurance programme for the radioactive waste generated or its processing, storage and disposal	Yes
Q47	establish and keep records of appropriate information regarding the generation, processing, storage and disposal of radioactive waste, including an inventory of radioactive waste	Yes
Q48	provide surveillance and control of activities involving radioactive waste as required by the regulatory body	Yes
Q49	collect, analyze and, as appropriate, share operational experience to ensure continued safety improvements in radioactive waste management	Yes
Q50	conduct or otherwise ensure appropriate research and development to support operational needs in radioactive waste management	Yes

Clearance		(Yes;No)
Q128	Does your country have "clearly defined clearance levels based on radiological criteria, with policy statements that material below those levels can be recycled or disposed of with non-radioactive wastes"?	Yes
Q129	Has your country ever used a "case-by-case" approach to clearing radioactive wastes (excluding spent/disused sealed radioactive sources)?	Yes
Q130	Has your country ever used clearance levels to dispose of, reuse or recycle radioactive waste as non-radioactive waste or as a non-radioactive resource (excluding spent/disused sealed radioactive sources)?	No

Policies

Country: INDONESIA

Reporting Year: 2013

Disposal Facilities

Licensing		(Yes - All;Yes - Some;No)
Q53	Environmental Assessment (EA)	Yes - All
Q54	Environmental Impact Statement (EIS)	Yes - All
Q55	Performance Assessment (PA)	Yes - All
Q56	Quality Assurance (QA)	Yes - All
Q57	Safety Assessment (SA)	Yes - All
Q59	If Quality Assurance is part of your Country's current, waste disposal facility licensing policy, does the QA Program conform to international standards (such as the ISO9000 series)?	Yes - Some
Operation		(Yes - All;Yes - Some;No)
Q60	Does your Country have formal, documented waste acceptance criteria for its operating or proposed disposal facilities?	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: INDONESIA

Reporting Year: 2013

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)	Yes
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?	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

Policies

Country: INDONESIA

Reporting Year: 2013

Spent/Disused SRS

Registration		(Yes;No)
Q84	Is there a national level registry?	Yes
Q85	If answer was yes, is the registry used only for disused/spent SRS?	No
Q87	Are there regional-level registries (one or more)?	No
Q90	Are there local-level registries (one or more)?	No
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)?	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?	Yes
Q102	Has your Country implemented dedicated disposal facilities for spent SRS?	No
Q103	Does your Country have plans to implement dedicated disposal facilities for spent SRS?	No

Import-Export

Radioactive Waste		(Yes;No)
Q104	Does your Country have laws or Regulations restricting either the import or export of radioactive waste (excluding spent fuel)?	Yes
Spent Fuel		(Yes;No)
Q105	Does your Country have laws or Regulations restricting either the import or export of spent fuel?	Yes

Comment # 367: Export Spent Fuels

We have no regulation for restricting of spent fuels export. Until now we do repatriate spent fuel from our research reactors to USA.

Country: INDONESIA

Reporting Year: 2013

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?	Yes - Some

Radionuclide Inventory by Waste Class

Country: INDONESIA

Reporting Year: 2013

No data available.

No data available.

No data available.

No data available.

No data available.

No data available.

No data available.

Spent Fuel Inventory

Country: INDONESIA

Reporting Year: 2013

Spent Fuel in Storage

Data available but will not be reported.

Waste Management Infrastructure and Financing

Country: INDONESIA

Reporting Year: 2013

National Infrastructure

Nuclear Energy Context:	
Research & Development:	
Policies and Programs:	
Decommissioning and Dismantling:	
Legal Framework:	<p>The main legislation on radioactive waste management in Indonesia are the Act No. 10/1997 on Nuclear Energy and the Government Regulation No. 61/2013 on Radioactive Waste Management. The Act No. 10/1997 classifies radioactive waste as: low, intermediate and high level of radioactive waste. High level radioactive wastes were including spent fuel as it stated on Government Regulation No. 61/2013. Government Regulation No. 61/2013 establishes the obligation of BAPETEN, BATAN and the radioactive waste producers. The Government of the Republic of Indonesia has ratified "the Joint Convention on the Safety of Spent Fuel Management and on the Safety of Radioactive Waste Management", as ratified by the President Regulation No. 84/2010 on 28 December 2010. BAPETEN has developed regulations on spent fuel and radioactive waste management, such as BAPETEN Chairman Regulation No. 03/1999 which are already in-line with BSS-115. However, BAPETEN will continuously to improve and develop its specific regulation and guidance to comply with the Convention. BAPETEN also performed inspections to license holders to verify their compliance with the nuclear laws.</p>
Planned Improvements:	

National Financing

Nuclear installations:	
Legacy Wastes:	
Medical installations:	
Extractive Industries:	
Additional Comments:	

Waste Management Organisations

Country: INDONESIA

Reporting Year: 2013

Name:	
Full Name:	
Description:	
Address:	
Main Website:	
Year Established:	1
Legal Nature:	Public

Waste Management Strategies

Country: INDONESIA

Reporting Year: 2013

Waste Class	
Strategy	

Waste Management Responsibility

Country: INDONESIA

Reporting Year: 2013

Waste Class:	
Regulatory Authority:	
Treatment/Conditioning of Radioactive Waste:	
Transport of Radioactive Waste:	
Development/operation of interim Storage Facilities:	
Development/operation of Disposal Facilities:	
Waste Management Organisation:	
Additional Comments:	

Main Waste Producers

Country: INDONESIA

Reporting Year: 2013

Name:	
Full Name:	
Description:	
Address:	
Main Website:	

Future Outlook

Country: INDONESIA

Reporting Year: 2013

Outlook for the year: 2030

Gross Nuclear Capacity (MW):	0
Assumptions:	
Total Waste "as dispo" Volume in Storage (m ³):	525
Total Waste Volume in Disposal (m ³):	0
Assumptions:	
Total Spent Fuel in Storage (tHM):	0.695
Total Spent Fuel in Disposal (tHM):	
Assumptions:	
Remaining Disposal Capacity for Volume of Waste (m3):	0
Assumptions:	
Remaining Disposal Capacity for Spent Fuel (tHM):	0
Assumptions:	

Future Outlook

Country: INDONESIA

Reporting Year: 2013

Outlook for the year: 2050

Gross Nuclear Capacity (MW):	
Assumptions:	
Total Waste "as dispo" Volume in Storage (m ³):	1040
Total Waste Volume in Disposal (m ³):	0
Assumptions:	
Total Spent Fuel in Storage (tHM):	1.525
Total Spent Fuel in Disposal (tHM):	
Assumptions:	
Remaining Disposal Capacity for Volume of Waste (m3):	
Assumptions:	
Remaining Disposal Capacity for Spent Fuel (tHM):	
Assumptions:	

Future Outlook

Country: INDONESIA

Reporting Year: 2013

Outlook for the year: 2100

Gross Nuclear Capacity (MW):	
Assumptions:	
Total Waste "as dispo" Volume in Storage (m ³):	330.27
Total Waste Volume in Disposal (m ³):	
Assumptions:	
Total Spent Fuel in Storage (tHM):	
Total Spent Fuel in Disposal (tHM):	
Assumptions:	
Remaining Disposal Capacity for Volume of Waste (m ³):	
Assumptions:	
Remaining Disposal Capacity for Spent Fuel (tHM):	
Assumptions:	