



**Country Waste Profile Report for  
BRAZIL  
Reporting Year: 2008**

*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](mailto:NEWMDB@IAEA.org)*

## Waste Classification Schemes

Country: BRAZIL

Reporting Year: 2008

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

Comment **# 383: Usage Specification**

Usage is specified in the brazilian standard

Norma Técnica CNEN-NN-6.09 "Critérios de Aceitação para Deposição de Rejeitos Radioativos de Baixo e Médio Níveis de Radiação", approved on september 23rd 2002

**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: BRAZIL

Reporting Year: 2008

<b>Reporting Group:</b>	<b>CNEN</b>
Inventory Reporting Date:	December 2008
Waste Matrix Used:	IAEA Def.
Description:	Comissão Nacional de Energia Nuclear

Site Name	Facility Name	Facilities Defined		
CDTN	CDTN_STR	processing	storage	
CRCN-CO	GCC			disposal
	GR			disposal
IEN	IEN_STR	processing	storage	
IPEN	IPEN_STR	processing	storage	

<b>Reporting Group:</b>	<b>ETN</b>
Inventory Reporting Date:	December 2008
Waste Matrix Used:	IAEA Def.
Description:	Eletróbrás Termonuclear S.A.

Site Name	Facility Name	Facilities Defined		
Angra I	A-1 Proc	processing		
Angra II	A2 - Proc	processing	storage	
DIRR	Facility 3		storage	

## Site (Structure) : CDTN

Country: BRAZIL

Reporting Year: 2008

Full Name: Centro de Desenvolvimento da Tecnologia Nuclear

Location: Rua Prof. Mário Werneck s/nº  
Belo Horizonte - MG - Brasil  
CEP 30123-970

Description:

Official Website:

License Holder(s): certified facility (safety assessment required)  
Operating organization:  
Centro de Desenvolvimento da Tecnologia Nuclear  
Rua Prof. Mário Werneck s/nº  
Belo Horizonte - MG - Brasil  
CEP 30123-970

Waste management facilities that are located at this site:

## Site (Structure) : CDTN

Country: BRAZIL

Reporting Year: 2008

<b>Facility:</b>	<b>CDTN_STR</b>
<b>Description:</b>	cementing laboratory for immobilizing radioactive liquid waste and testing product quality, bitumization laboratory for tests and a compression equipment for compressible wastes. One hot cell for the dismantling of lightning rods.

**Storage part of facility CDTN\_STR**

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
VLLW	No	No
LLW	Yes	Yes
ILW	Yes	Yes
HLW	No	No

List SRS?	No
List UMMT?	No

<b>Capacity:</b>	CONCRETE SILO WITH 5.048 SPENT SOURCES AND A TOTAL VOLUME OF 97.3 CUBIC METERS AND A TOTAL ACTIVITY OF 7,6 TBq
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## Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
STR_1	building	1970	No	No	No	Yes

**Processing part of facility CDTN\_STR**

The following shows processing status for waste classes and SRS.

Waste Class	Actual	Planned
VLLW	No	No
LLW	Yes	Yes
ILW	Yes	Yes
HLW	No	No

<b>Type:</b>	Treatment, Conditioning
<b>Year opened:</b>	1970

## Site (Data) : CDTN

Stock of waste as at December 2008

Country: BRAZIL

Reporting Year: 2008

Site Name: CDTN

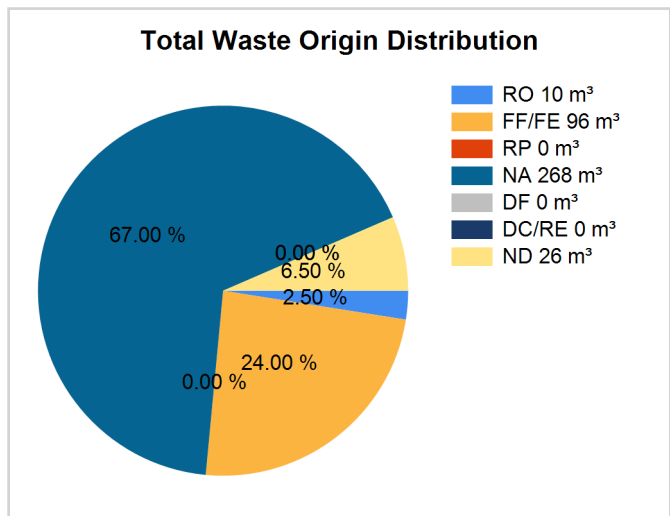
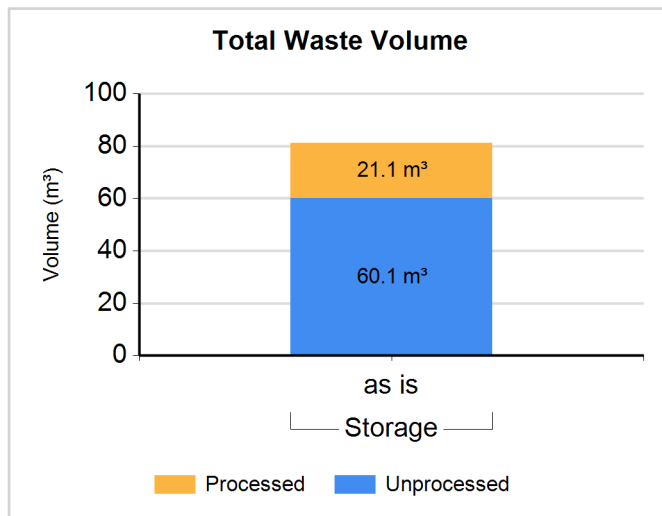
Full Name: Centro de Desenvolvimento da Tecnologia Nuclear

Inventory Reporting Date: December 2008

Waste Matrix Used: IAEA Def.

## 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	N	Y	41.400	41.400	0.00	0.00	0.00	100.00	0.00	0.00	0.00
LLW	Storage	Y	Y	2.000	2.000	0.00	0.00	0.00	100.00	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	N	Y	18.700	18.700	0.00	29.00	0.00	45.00	0.00	0.00	26.00
ILW	Storage	Y	Y	19.100	19.100	10.00	67.00	0.00	23.00	0.00	0.00	0.00

## Site (Data) : CDTN

Stock of waste as at December 2008

Country: BRAZIL

Reporting Year: 2008

**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	Decrease	N
Compaction	N	N	Decrease	N
Decontamination	N	N	Decrease	N
Filtration	N	N	Decrease	N
Segregation/Sorting	N	N	Decrease	N
Shredding	N	N	Decrease	N
Size Reduction	N	N	Suspended	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	Decrease	N
Cementation	N	N	Decrease	N
Encapsulation	N	N	Decrease	N
Solidification	N	N	Decrease	N

## Site (Structure) : CRCN-CO

Country: BRAZIL

Reporting Year: 2008

Full Name: Centro Regional de Ciências Nucleares do Centro-Oeste

Location: BR 060, km 174,5  
Abadia de Goiás - GO - Brasil  
CEP 75345-000

Description:

Official Website:

License Holder(s): certified facility (safety assessment required)  
Operating organization:  
Centro Regional de Ciências Nucleares do Centro-Oeste

Waste management facilities that are located at this site:

Facility:	GCC
Description:	Great Capacity Container



## Site (Structure) : CRCN-CO

Country: BRAZIL

Reporting Year: 2008

**Disposal part of facility**                      **GCC**

The following shows disposal status for waste classes and SRS.

Waste Class	Actual	Planned
VLLW	No	No
LLW	Yes	No
ILW	No	No
HLW	No	No

List SRS?	No
List UMMT?	No

Type:	engineered near surface		
Facility is modular?	No		
Capacity existing (m3):	1525	Capacity planned (m3):	1525

Depth (m):	4	Host medium:	sedimentary (other)
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Phase Name	Start Year	End Year	Estimate
planning and/or concept assessment	1990	1993	False
site selection	1991	1993	False
design	1994	1995	False
construction	1995	1995	False
commissioning	1991	1997	False
operation	1995	1997	False
closure	1997	1997	False
institutional control	1997	2047	False

## Site (Structure) : CRCN-CO

Country: BRAZIL

Reporting Year: 2008

<b>Facility:</b>	<b>GR</b>
<b>Description:</b>	Goiânia Repository

**Disposal part of facility GR**

The following shows disposal status for waste classes and SRS.

Waste Class	Actual	Planned
VLLW	No	No
LLW	Yes	No
ILW	No	No
HLW	No	No

List SRS?	No
List UMMT?	No

Type:	engineered near surface		
Facility is modular?	No		
Capacity existing (m3):	1975	Capacity planned (m3):	1975

Depth (m):	4	Host medium:	sedimentary (other)
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Phase Name	Start Year	End Year	Estimate
planning and/or concept assessment	1990	1993	False
site selection	1991	1993	False
design	1994	1996	False
construction	1996	1997	False
commissioning	1991	1997	False
operation	1997	1997	False
closure	1997	1997	False
institutional control	1997	2047	False

## Site (Data) : CRCN-CO

Stock of waste as at December 2008

Country: BRAZIL

Reporting Year: 2008

**Site Name:** CRCN-CO

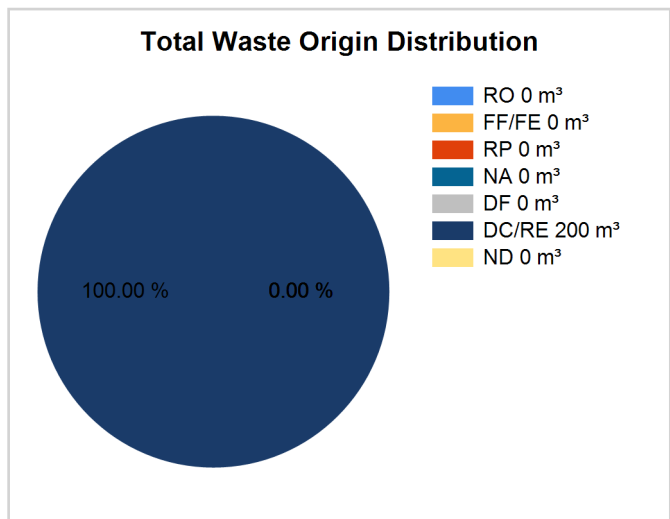
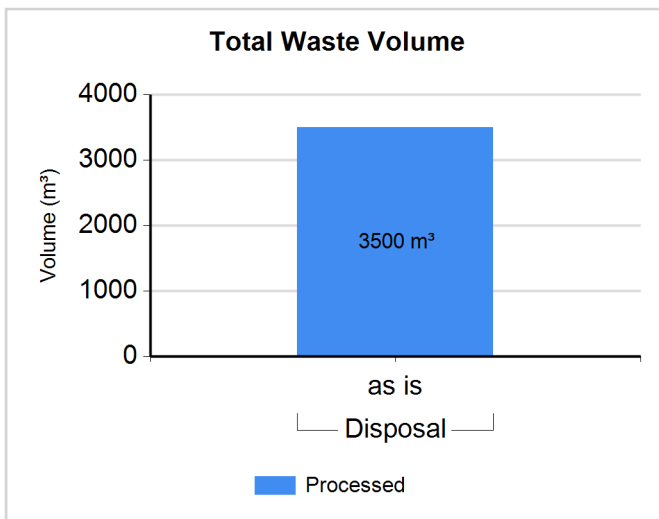
Full Name: Centro Regional de Ciências Nucleares do Centro-Oeste

Inventory Reporting Date: December 2008

Waste Matrix Used: IAEA Def.

**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	Disposal / GCC	Y	N	1525.000	1525.000	0.00	0.00	0.00	0.00	0.00	100.00	0.00
LLW	Disposal / GR	Y	N	1975.000	1975.000	0.00	0.00	0.00	0.00	0.00	100.00	0.00

**Site (Structure) : IEN**

Country: BRAZIL

Reporting Year: 2008

Full Name: Instituto de Engenharia Nuclear

Location: Cidade Universitária - Ilha do Fundão  
Rio de Janeiro - RJ - Brasil

Description:

Official Website:

License Holder(s): certified facility (safety assessment required)  
Operating organization:  
Instituto de Engenharia Nuclear  
Cidade Universitária - Ilha do Fundão  
Rio de Janeiro - RJ - Brasil  
CEP 21941-590

Waste management facilities that are located at this site:

## Site (Structure) : IEN

Country: BRAZIL

Reporting Year: 2008

<b>Facility:</b>	IEN_STR
<b>Description:</b>	Concrete building with 7560 spent sources equivalent of 114.9 cubic meters and a total activity of 7.6 TBq.

**Storage part of facility IEN\_STR**

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
VLLW	No	No
LLW	Yes	Yes
ILW	Yes	Yes
HLW	No	No

<b>List SRS?</b>	No
<b>List UMMT?</b>	No

<b>Capacity:</b>	
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## Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
STR_1	building	1970	No	No	No	Yes

**Processing part of facility IEN\_STR**

The following shows processing status for waste classes and SRS.

Waste Class	Actual	Planned
VLLW	No	No
LLW	Yes	Yes
ILW	Yes	Yes
HLW	No	No

<b>Type:</b>	Treatment, Conditioning
<b>Year opened:</b>	1970

## Site (Data) : IEN

Stock of waste as at December 2008

Country: BRAZIL

Reporting Year: 2008

Site Name: IEN

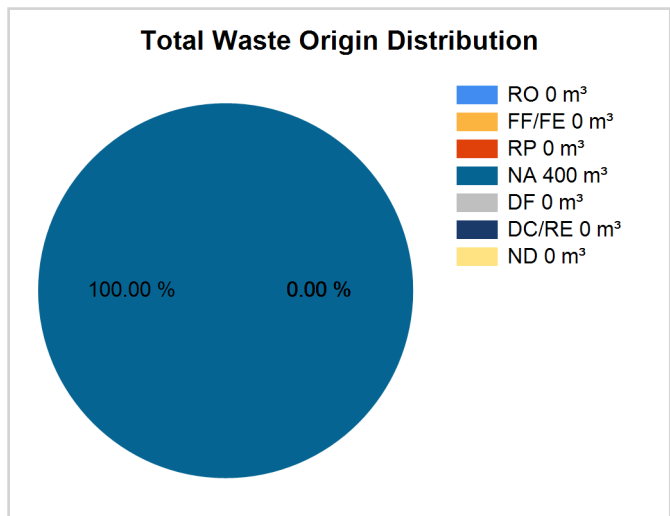
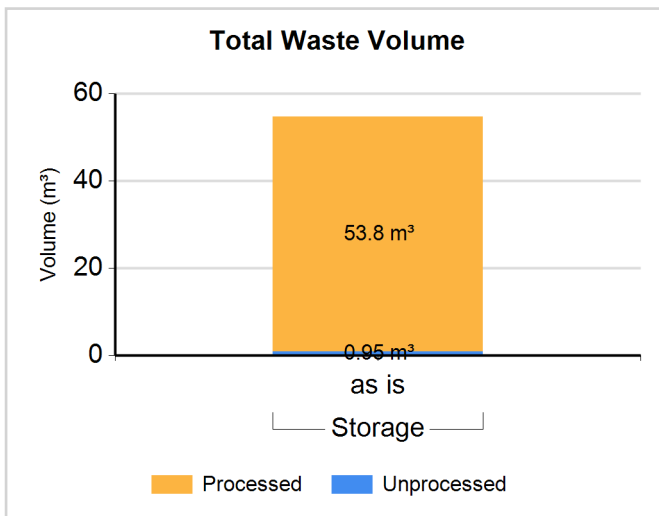
Full Name: Instituto de Engenharia Nuclear

Inventory Reporting Date: December 2008

Waste Matrix Used: IAEA Def.

## 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	N	Y	0.600	0.600	0.00	0.00	0.00	100.00	0.00	0.00	0.00
LLW	Storage	Y	Y	52.000	52.000	0.00	0.00	0.00	100.00	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	N	Y	0.350	0.350	0.00	0.00	0.00	100.00	0.00	0.00	0.00
ILW	Storage	Y	Y	1.800	1.800	0.00	0.00	0.00	100.00	0.00	0.00	0.00

## Site (Data) : IEN

Stock of waste as at December 2008

Country: BRAZIL

Reporting Year: 2008

**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	Suspended	N
Compaction	N	N	Same	N
Decontamination	N	N	Same	N
Filtration	N	N	Suspended	N
Ion Exchange	N	N	Suspended	N
Segregation/Sorting	N	N	Increase	N
Wastewater Treatment	N	N	Suspended	N

**Processing - Conditioning method(s)**

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

**Site (Structure) : IPEN**

Country: BRAZIL

Reporting Year: 2008

Full Name: Instituto de Pesquisas Energéticas e Nucleares

Location: Travessa R, 400 - Cidade Universitária  
São Paulo - SP - Brasil

Description:

Official Website:

License Holder(s): certified facility (safety assessment required)  
Operating organization:  
Instituto de Pesquisas Energéticas e Nucleares  
Travessa R, 400 - Cidade Universitária  
São Paulo - SP - Brasil  
CEP 05508-900

Waste management facilities that are located at this site:



## Site (Structure) : IPEN

Country: BRAZIL

Reporting Year: 2008

<b>Facility:</b>	IPEN_STR
<b>Description:</b>	"Unidade Integrada de Tratamento e Armazenamento de Rejeitos" (UITAR). 5.450 spent sources storage equivalent of 350 cubic meters and a total activity of 543 TBq. Includes a hot cell for the dismantling of Am-241 lightning rods and a cementation system.

**Storage part of facility** IPEN\_STR

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
VLLW	No	No
LLW	Yes	Yes
ILW	No	No
HLW	No	No

List SRS?	No
List UMMT?	No

Capacity:	
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## Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
STR_01	building	1970	No	No	No	Yes

**Processing part of facility** IPEN\_STR

The following shows processing status for waste classes and SRS.

Waste Class	Actual	Planned
VLLW	No	No
LLW	Yes	Yes
ILW	No	No
HLW	No	No

Type:	Treatment, Conditioning
Year opened:	1970

## Site (Data) : IPEN

Stock of waste as at December 2008

Country: BRAZIL

Reporting Year: 2008

Site Name: IPEN

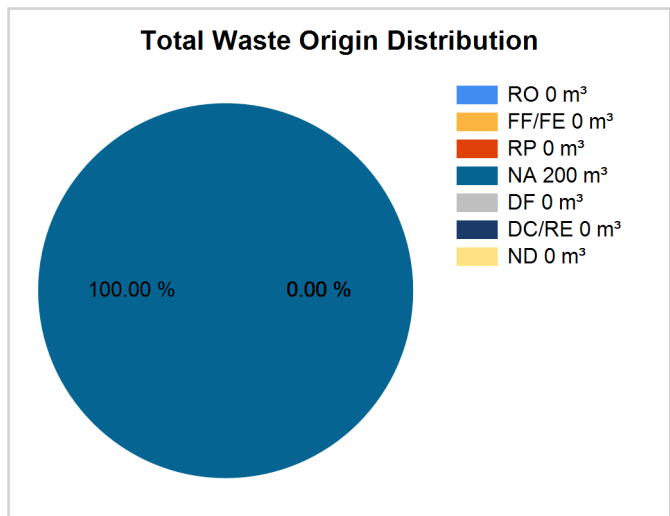
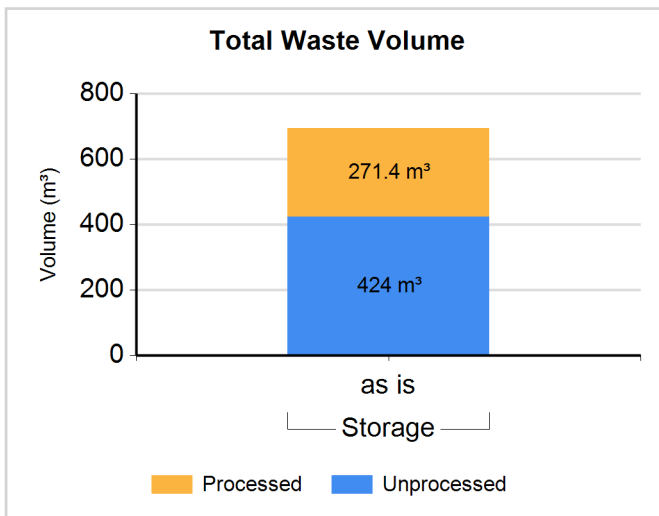
Full Name: Instituto de Pesquisas Energéticas e Nucleares

Inventory Reporting Date: December 2008

Waste Matrix Used: IAEA Def.

## 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	N	Y	424.000	424.000	0.00	0.00	0.00	100.00	0.00	0.00	0.00
LLW	Storage	Y	Y	271.400	271.400	0.00	0.00	0.00	100.00	0.00	0.00	0.00

## Site (Data) : IPEN

Stock of waste as at December 2008

Country: BRAZIL

Reporting Year: 2008

**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	Intermittent	N
Compaction	N	N	Same	N
Decontamination	N	N	Intermittent	N
Filtration	N	N	Same	N
Ion Exchange	N	N	Intermittent	N
Segregation/Sorting	N	N	Same	N
Shredding and Compaction	N	N	Intermittent	N
Size Reduction	N	N	Same	N
Wastewater Treatment	N	N	Intermittent	N
Water/Acid Washing	N	N	Intermittent	N

**Processing - Conditioning method(s)**

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

## Site (Structure) : Angra I

Country: BRAZIL

Reporting Year: 2008

Full Name: Central Nuclear Almirante Álvaro Alberto-CNAAA  
 Location: Rodovia Rio-Santos (BR-101), Km 522 (antigo Km 132)  
 Praia de Itaorna, CEP: 23900-000  
 Angra dos Reis - RJ

Description:

Official Website:

License Holder(s): Eletronuclear - Eletrobrás Termonuclear S.A  
 Rua da Candelária, 65, Centro, RJ  
 CEP: 20091-020  
 Rio de Janeiro - RJ

Waste management facilities that are located at this site:

<b>Facility:</b>	<b>A-1 Proc</b>																
<b>Description:</b>	Angra I is a 650 MW PWR and initiated its operation in 1981																
<p><b>Processing part of facility                      A-1 Proc</b></p> <p>The following shows processing status for waste classes and SRS.</p> <table border="1"> <thead> <tr> <th>Waste Class</th> <th>Actual</th> <th>Planned</th> </tr> </thead> <tbody> <tr> <td>VLLW</td> <td>No</td> <td>No</td> </tr> <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	VLLW	No	No	LLW	No	No	ILW	No	No	HLW	No	No
Waste Class	Actual	Planned															
VLLW	No	No															
LLW	No	No															
ILW	No	No															
HLW	No	No															
<b>Type:</b>	Treatment, Conditioning																
<b>Year opened:</b>	1981																

**Site (Data) : Angra I**

Stock of waste as at December 2008

Country: BRAZIL

Reporting Year: 2008

**Site Name:** Angra I

Full Name: Central Nuclear Almirante Álvaro Alberto-CNAAA

Inventory Reporting Date: December 2008

Waste Matrix Used: IAEA Def.

**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
Filtration	N	N	Same	N
Ion Exchange	N	N	Same	N
Rinsing	N	N	Same	N
Segregation/Sorting	N	N	Same	N
Shredding and Compaction	N	N	Same	N
Super Compaction	N	N	Intermittent	N
Wastewater Treatment	N	N	Same	N

**Processing - Conditioning method(s)**

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

## Site (Structure) : Angra II

Country: BRAZIL

Reporting Year: 2008

Full Name: Central Nuclear Almirante Álvaro Alberto-CNAAA  
Location: Rodovia Rio-Santos (BR-101), Km 522 (antigo Km 132)  
Praia de Itaorna, CEP: 23900-000  
Angra dos Reis - RJ

Description:

Official Website:

License Holder(s): Eletronuclear - Eletrobrás Termonuclear S.A  
Rua da Candelária, 65, Centro, RJ  
CEP: 20091-020  
Rio de Janeiro - RJ

Waste management facilities that are located at this site:

## Site (Structure) : Angra II

Country: BRAZIL

Reporting Year: 2008

<b>Facility:</b>	<b>A2 - Proc</b>
<b>Description:</b>	Angra II is a 1.300 MW PWR and initiated its operation on January 2000

**Storage part of facility                      A2 - Proc**

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
VLLW	No	No
LLW	Yes	Yes
ILW	No	No
HLW	No	No

<b>List SRS?</b>	No
<b>List UMMT?</b>	No

<b>Capacity:</b>	Storage divided into two rooms. The first one is the low level waste room whose capacity is 276 cubic meters and the other one is the medium level waste room with capacity to 52.8 cubic meters .
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## Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
KPE	building	2000	No	No	No	No

**Processing part of facility                      A2 - Proc**

The following shows processing status for waste classes and SRS.

Waste Class	Actual	Planned
VLLW	No	No
LLW	Yes	Yes
ILW	No	No
HLW	No	No

<b>Type:</b>	Treatment, Conditioning
<b>Year opened:</b>	2000

## Site (Data) : Angra II

Stock of waste as at December 2008

Country: BRAZIL

Reporting Year: 2008

**Site Name:** Angra II

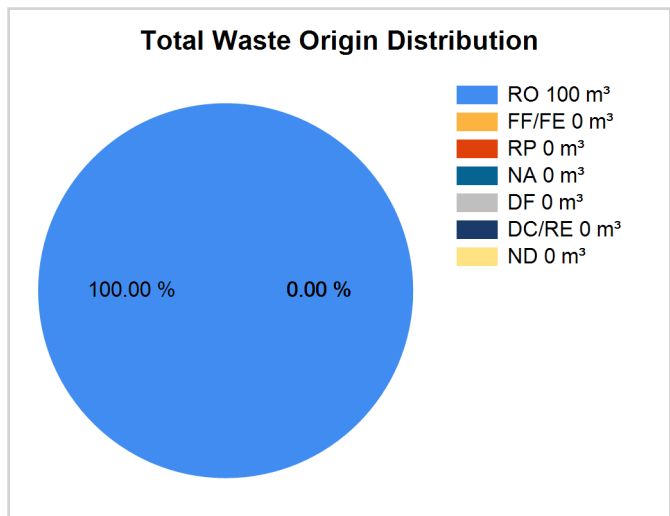
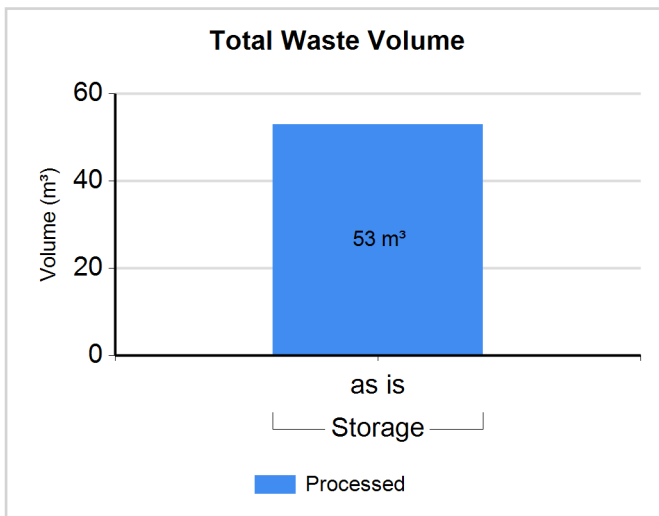
Full Name: Central Nuclear Almirante Álvaro Alberto-CNAAA

Inventory Reporting Date: December 2008

Waste Matrix Used: IAEA Def.

**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	N	53.000	53.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00



## Site (Data) : Angra II

Stock of waste as at December 2008

Country: BRAZIL

Reporting Year: 2008

**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
Filtration	N	N	Same	N
Ion Exchange	N	N	Same	N
Rinsing	N	N	Same	N
Segregation/Sorting	N	N	Same	N
Shredding and Compaction	N	N	Same	N
Super Compaction	N	N	Intermittent	N
Wastewater Treatment	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	Same	N
Encapsulation	N	N	Same	N

## Site (Structure) : DIRR

Country: BRAZIL

Reporting Year: 2008

Full Name: Central Nuclear Almirante Álvaro Alberto-CNAAA  
 Location: Rodovia Rio-Santos (BR-101), Km 522 (antigo Km 132)  
 Praia de Itaorna, CEP: 23900-000  
 Angra dos Reis - RJ

Description:

Official Website:

License Holder(s): ETN

Waste management facilities that are located at this site:

<b>Facility:</b>	<b>Facility 3</b>					
<b>Description:</b>	Storage of low and intermediate level waste (spent resins, compressible waste, evaporator concentrate, etc)					
<b>Storage part of facility Facility 3</b>						
The following shows storage status for waste classes and SRS.						
<b>Waste Class</b>	<b>Actual</b>	<b>Planned</b>				
VLLW	No	No				
LLW	Yes	Yes				
ILW	No	No				
HLW	No	No				
<b>List SRS?</b>	No					
<b>List UMMT?</b>	No					
<b>Capacity:</b>	2375 cubic meters					
<b>Types of Storage Units</b>						
<b>Storage Unit Name</b>	<b>Type Name</b>	<b>Year Opened</b>	<b>Closed?</b>	<b>Full?</b>	<b>Modular?</b>	<b>Contains SRS?</b>
DIRR	building	1981	No	No	Yes	No

Site (Data) : DIRR

Stock of waste as at December 2008

Country: BRAZIL

Reporting Year: 2008

Site Name: DIRR

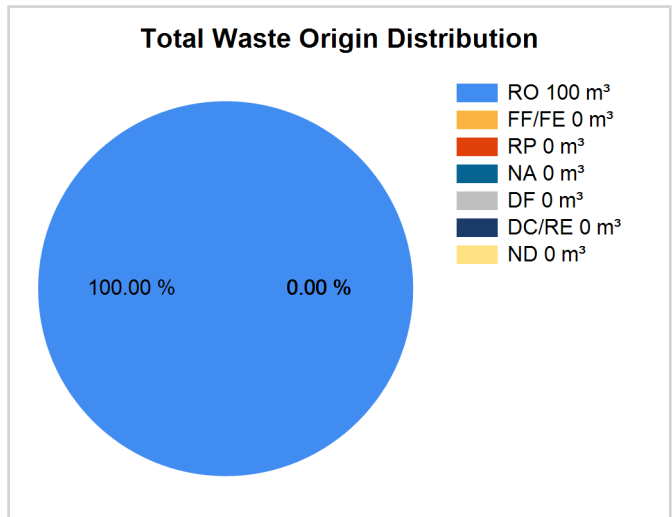
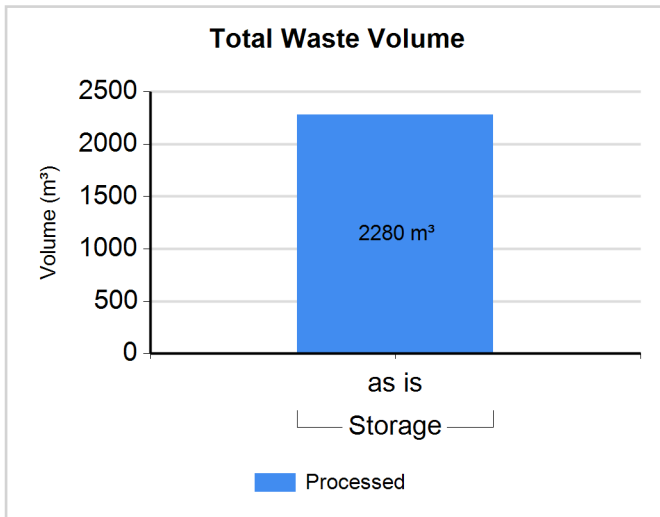
Full Name: Central Nuclear Almirante Álvaro Alberto-CNAAA

Inventory Reporting Date: December 2008

Waste Matrix Used: IAEA Def.

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	N	2280.000	2280.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00

## Regulators

Country: BRAZIL

Reporting Year: 2008

<b>Name:</b>	<b>CNEN</b>
Full Name:	Comissão Nacional de Energia Nuclear
Divison:	Diretoria de Radioproteção e Segurança Nuclear
City or Town:	Rio de Janeiro
Main Website:	

<b>Name:</b>	<b>IBAMA</b>
Full Name:	Instituto Brasileiro do Meio Ambiente e dos Recursos Naturais Renováveis
Divison:	
City or Town:	Brasília - DF
Main Website:	

## Regulations / Laws

Country: BRAZIL

Reporting Year: 2008

<b>Name:</b>	<b>REG_01</b>	
Title or Name:	CRITÉRIOS DE ACEITAÇÃO PARA DEPOSIÇÃO DE REJEITOS RADIOATIVOS DE BAIXO E MÉDIO NÍVEIS DE RADIAÇÃO	
Reference Number:	Norma CNEN-NN-6.09	
Date Promulgated or Proclaimed:	9/23/2002	Regulation

Comment **# 6856: Wastes that are regulated by the Regulation**

Matrix IAEA Def. - LILW-SL

<b>Name:</b>	<b>LAW_01</b>	
Title or Name:	Lei nº 10.308, de 20.11.2001	
Reference Number:	Lei 10.308	
Date Promulgated or Proclaimed:	11/20/2001	Law

Comment **# 6857: Wastes that are regulated by the Law**

Matrix IAEA Def. - HLW, LILW-LL, LILW-SL

Comment **# 7514: Lei no. 10.308**

Dispõe sobre a seleção de locais, a construção, o licenciamento, a operação, a fiscalização, os custos, a indenização, a responsabilidade civil e as garantias referentes aos depósitos de rejeitos radioativos, e dá outras providências.

<b>Name:</b>	<b>REG_02</b>	
Title or Name:	Gerência de Rejeitos Radioativos em Instalações Radiativas	
Reference Number:	Norma CNEN-NE-6.05	
Date Promulgated or Proclaimed:	12/17/1985	Regulation

Comment **# 6858: Wastes that are regulated by the Regulation**

Matrix IAEA Def. - LILW-SL

<b>Name:</b>	<b>REG_03</b>	
Title or Name:	Seleção e Escolha de Locais para Depósitos de Rejeitos Radioativos	
Reference Number:	Norma CNEN-NE-6.06	
Date Promulgated or Proclaimed:	1/24/1990	Regulation

Comment **# 6859: Wastes that are regulated by the Regulation**

Matrix IAEA Def. - LILW-LL, LILW-SL

## Regulations / Laws

Country: BRAZIL

Reporting Year: 2008

<b>Name:</b>	<b>REG_04</b>	
Title or Name:	Diretrizes Básicas de Radioproteção	
Reference Number:	Norma CNEN-NE-3.01	
Date Promulgated or Proclaimed:	8/1/1988	Regulation

Comment **# 6860: Wastes that are regulated by the Regulation**

Matrix IAEA Def. - HLW, LILW-LL, LILW-SL

<b>Name:</b>	<b>REG_05</b>	
Title or Name:	Transporte de Materiais Radioativos	
Reference Number:	Norma CNEN-NE-5.01	
Date Promulgated or Proclaimed:	8/1/1988	Regulation

Comment **# 6861: Wastes that are regulated by the Regulation**

Matrix IAEA Def. - HLW, LILW-LL, LILW-SL

<b>Name:</b>	<b>REG_06</b>	
Title or Name:	Radioproteção e Segurança para Deposição Final dos Rejeitos Radioativos Armazenados em Abadia de Goiás	
Reference Number:	Instrução Técnica CNEN-IT-01	
Date Promulgated or Proclaimed:	12/1/1990	Regulation

Comment **# 6862: Wastes that are regulated by the Regulation**

Matrix IAEA Def. - LILW-SL

<b>Name:</b>	<b>REG_07</b>	
Title or Name:	Certificação do Atendimento aos Requisitos de Segurança e Radioproteção pelas Instalações Nucleares e pelas Instalações Radiativas da CNEN	
Reference Number:	Instrução Normativa IN-CNEN-0001/94	
Date Promulgated or Proclaimed:	12/1/1994	Regulation

Comment **# 6863: Wastes that are regulated by the Regulation**

Matrix IAEA Def. - HLW, LILW-LL, LILW-SL

## Regulations / Laws

Country: BRAZIL

Reporting Year: 2008

<b>Name:</b>	<b>REG_08</b>	
Title or Name:	Licenciamento de Instalações Radiativas	
Reference Number:	Norma CNEN-NE-6.02	
Date Promulgated or Proclaimed:	6/2/1998	Regulation

Comment **# 6864: Wastes that are regulated by the Regulation**

Matrix IAEA Def. - HLW, LILW-LL, LILW-SL

<b>Name:</b>	<b>REG_09</b>	
Title or Name:	Licenciamento de Instalações Nucleares	
Reference Number:	Norma CNEN-NE-1.04	
Date Promulgated or Proclaimed:	12/14/1984	Regulation

Comment **# 6865: Wastes that are regulated by the Regulation**

Matrix IAEA Def. - HLW, LILW-LL, LILW-SL

<b>Name:</b>	<b>REG_10</b>	
Title or Name:	Sistema de Barragem de Rejeitos Contendo Radionuclídeos	
Reference Number:	Norma CNEN-NE-1.10	
Date Promulgated or Proclaimed:	11/27/1980	Regulation

Comment **# 6866: Wastes that are regulated by the Regulation**

Matrix IAEA Def. - LILW-LL, LILW-SL

<b>Name:</b>	<b>REG_11</b>	
Title or Name:	Licenciamento de Minas e Usinas de Beneficiamento de Minérios de Urânio e/ou Tório	
Reference Number:	Norma CNEN-NE-1.13	
Date Promulgated or Proclaimed:	8/8/1989	Regulation

Comment **# 6867: Wastes that are regulated by the Regulation**

Matrix IAEA Def. - LILW-LL, LILW-SL

## Regulations / Laws

Country: BRAZIL

Reporting Year: 2008

<b>Name:</b>	<b>LAW_02</b>		
Title or Name:	Lei no. 4.118, de 27.08.1962		
Reference Number:	Lei 4.118		
Date Promulgated or Proclaimed:	8/27/1962	Law	

Comment **# 7515: Lei 4.118**

Dispõe sobre a política nacional de energia nuclear, cria a Comissão Nacional de Energia Nuclear, e dá outras providências.

<b>Name:</b>	<b>LAW_03</b>		
Title or Name:	Lei no. 6.189, de 16.12.1974.		
Reference Number:	Lei 6.189		
Date Promulgated or Proclaimed:	12/16/1974	Law	

Comment **# 7516: Lei 6.189**

Nuclear law that establishes rules in this area.

Altera a Lei no. 4.118, de 27 de agosto de 1962, e a Lei no. 5.740, de 1 de dezembro de 1971, que criaram, respectivamente, a Comissão Nacional de Energia Nuclear - CNEN e a Companhia Brasileira de Tecnologia Nuclear - CBTN, que passa a denominar-se Empresas Nucleares Brasileiras Sociedade Anônima - NUCLEBRÁS, e dá outras providências.

<b>Name:</b>	<b>LAW_04</b>		
Title or Name:	Lei no. 6.938, de 31.08.1981		
Reference Number:	Lei 6.938		
Date Promulgated or Proclaimed:	8/31/1981	Law	

Comment **# 7517: Lei 6.938**

Dispõe sobre a Política Nacional do Meio Ambiente, seus fins e mecanismo de formulação e aplicação, e dá outras providências.

<b>Name:</b>	<b>REG_12</b>		
Title or Name:	Garantia da Qualidade para Usinas Nucleoelétricas		
Reference Number:	Norma CNEN-NN-1.16		
Date Promulgated or Proclaimed:	9/21/1999	Regulation	

<b>Name:</b>	<b>REG_13</b>		
Title or Name:	Proteção Física de Unidades Operacionais da Área Nuclear		
Reference Number:	Norma CNEN-NE-2.01		
Date Promulgated or Proclaimed:	4/19/1996	Regulation	



## Regulations / Laws

Country: BRAZIL

Reporting Year: 2008

<b>Name:</b>	<b>REG_14</b>		
Title or Name:	Controle de Materiais Nucleares		
Reference Number:	Norma CNEN-NN-2.02		
Date Promulgated or Proclaimed:	9/21/1999	Regulation	

<b>Name:</b>	<b>LAW_05</b>		
Title or Name:	Civil Liability Law		
Reference Number:	Lei 6.453		
Date Promulgated or Proclaimed:	12/17/1977	Law	

## Future Outlook

Country: BRAZIL

Reporting Year: 2008

**Data not available.**

## Policies

Country: BRAZIL

Reporting Year: 2008

## National Systems

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

Reporting Year: 2008

<b>Activities</b>		<b>(Yes;Partially;No)</b>
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	Partially
Q46	establish and implement a quality assurance programme for the radioactive waste generated or its processing, storage and disposal	Partially
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
<b>Clearance</b>		<b>(Yes;No)</b>
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: BRAZIL

Reporting Year: 2008

## 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 - Some
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 - 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?	Yes
Q62	If the answer to the previous question was YES, does your Country have any policies, laws or regulations that prescribe what records are to be maintained?	Yes
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)	Yes
Q67	leachate treatment systems	Yes
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	Yes

## Policies

Country: BRAZIL

Reporting Year: 2008

**Processing/Storage**

<b>Policies/Procedures</b>		<b>(Yes;No)</b>
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
<b>Implementation</b>		<b>(Yes;No)</b>
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
<b>Foreign</b>		<b>(Yes;No)</b>
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: BRAZIL

Reporting Year: 2008

## 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?	Yes
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

## Policies

Country: BRAZIL

Reporting Year: 2008

**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? 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



## Future Outlook

Country: BRAZIL

Reporting Year: 2008

**Data not available.**

## Future Outlook

Country: BRAZIL

Reporting Year: 2008

**Data not available.**

## Future Outlook

Country: BRAZIL

Reporting Year: 2008

**Data not available.**

## Future Outlook

Country: BRAZIL

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