



**Country Waste Profile Report for
BULGARIA
Reporting Year: 2005**

*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: BULGARIA

Reporting Year: 2005

Waste Class Matrix: **IAEA Def.**

This country does use the IAEA Scheme: Yes

Description: The Agency's standard matrix

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

Comment **# 7363: Waste disposal limits**

National classification of waste is defined in Regulation 7 and is NOT disposal oriented.

At the same time Regulation 7 specifies alpha activity limits for the waste suitable for near-surface disposal, which are very similar to IAEA classification scheme (an average of 370MBq/t for the facility and up to 3.7 GBq/t for individual waste package). This is the reason to use IAEA matrix when reporting disposed or prepared for disposal waste.

Waste Class Matrix: **NPP**

Description: The nuclear power plant has six classes of LILW-SL waste. Solid waste is categorized depending on the dose rate at 0.1 m from the waste's surface and the liquid waste is categorized according to the total activity concentration.

Waste Class Name	Distribution %		
	LILW-SL	LILW-LL	HLW
Solid-1	100.0	0.0	0.0
Solid-2	100.0	0.0	0.0
Solid-3	100.0	0.0	0.0
Liquid-1	100.0	0.0	0.0
Liquid-2	100.0	0.0	0.0
Liquid-3	100.0	0.0	0.0

Comment **# 398: Waste classes**

Solid waste is categorized and sorted depending on the gamma dose-rate at 10 cm, as follows:

1st class - up to 0.3 mSv/h

2nd class - 0.3 - 10 mSv/h

3rd class - more than 10 mSv/h

Liquid waste is categorized according to its activity concentration, as follows:

1st class (LLW) - up to 0.37 MBq/l

2nd class (ILW) - 0.37 MBq/l - 37 GBq/l

3rd class (HLW) - more than 37 GBq/l

Attachment **#163: Waste Matrix**

Nar7_ANN.pdf

Annex 4 to Regulation 7 of the CUAPEPP contains the national classification scheme of solid radioactive waste

Attachment **#164: Waste Matrix**

NAR7_E.pdf

Regulation 7 on collecting, storage, processing, keeping, shipment and disposal of radioactive waste on the territory of the Republic of Bulgaria. Article 14 defines the national classification scheme of liquid RW.

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

Waste Classification Schemes

Country: BULGARIA

Reporting Year: 2005

This country uses the IAEA standard definition:

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

Groups Overview

Country: BULGARIA

Reporting Year: 2005

Reporting Group:	INRNE
Inventory Reporting Date:	December 2005
Waste Matrix Used:	IAEA Def.
Description:	Institute for Nuclear Research and Nuclear Energy Reporting Group - Novi Han repository

Site Name	Facility Name	Facilities Defined		
Novi Han	Accidental			disposal
	Biological			disposal
	Liquid		storage	
	Solid			disposal
	SRS			disposal
	Stor2000		storage	
	WPF	processing		

Reporting Group:	KNPP
Inventory Reporting Date:	December 2005
Waste Matrix Used:	NPP
Description:	Kozloduy NPP Reporting Group

Site Name	Facility Name	Facilities Defined		
KNPP	AB-1	processing	storage	
	AB-2	processing	storage	
	AB-3	processing	storage	
	CWSF		storage	
	Units 1, 2		storage	
	Units 3, 4		storage	
	WMA-VS		storage	
	WTCP	processing		

Site (Structure) : Novi Han

Country: BULGARIA

Reporting Year: 2005

Full Name: Novi Han Repository

Location: Losen Mountain, near the village of Novi Han, altitude 920 m

Description:

Official Website:

License Holder(s): Institute of Nuclear Research and Nuclear Energy, 72 Tzarigradsko Chaussee Blvd.,
1784 Sofia, Bulgaria; tel: ++ 359 2 974 37 61, fax: ++ 359 2 975 36 19, e-mail:
INRNE@INRNE.BAS.BG

Waste management facilities that are located at this site:

Facility:	Accidental
Description:	Engineered trench for disposal of LIL solid waste generated during accident (originally planned) and normal operation

Site (Structure) : Novi Han

Country: BULGARIA

Reporting Year: 2005

Disposal part of facility **Accidental**

The following shows disposal status for waste classes and SRS.

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

List SRS?	No
List UMMT?	No

Type:	engineered near surface		
Facility is modular?	No		
Capacity existing (m3):	200	Capacity planned (m3):	200

Depth (m):	3-4	Host medium:	crystalline rock (other)
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Phase Name	Start Year	End Year	Estimate
planning and/or concept assessment	1960	1960	False
site selection	1960	1962	False
design	1984	1984	False
construction	1984	1984	False
commissioning	1984	1984	False
operation	1984	1994	False
EVENT: operating license suspended	1994		False

Site (Structure) : Novi Han

Country: BULGARIA

Reporting Year: 2005

Facility:	Biological
Description:	Concrete vault for disposal of biological waste

Disposal part of facility Biological

The following shows disposal status for waste classes and SRS.

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

List SRS?	No
List UMMT?	No

Type:	engineered near surface		
Facility is modular?	No		
Capacity existing (m3):	80	Capacity planned (m3):	80

Depth (m):	3-4	Host medium:	crystalline rock (other)
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Phase Name	Start Year	End Year	Estimate
planning and/or concept assessment	1960	1960	False
site selection	1960	1962	False
design	1962	1962	False
construction	1962	1964	False
commissioning	1964	1964	False
operation	1964	1994	False
EVENT: operating license suspended	1994		False

Site (Structure) : Novi Han

Country: BULGARIA

Reporting Year: 2005

Facility:	Liquid					
Description:	Liquid waste storage tanks					
Storage part of facility Liquid						
The following shows storage status for waste classes and SRS.						
Waste Class	Actual	Planned				
LILW-SL	Yes	Yes				
LILW-LL	No	No				
HLW	No	No				
List SRS?	No					
List UMMT?	No					
Capacity:	4 stainless steel tanks 12 m3 each, total capacity 48 m3					
Types of Storage Units						
Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
Liquid	tank (stainless steel)	1964	No	No	Yes	No

Site (Structure) : Novi Han

Country: BULGARIA

Reporting Year: 2005

Facility:	Solid
Description:	Concrete vault for disposal of solid waste originating from nuclear applications

Disposal part of facility Solid

The following shows disposal status for waste classes and SRS.

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

List SRS?	No
List UMMT?	No

Type:	engineered near surface		
Facility is modular?	No		
Capacity existing (m3):	237	Capacity planned (m3):	237

Depth (m):	3-4	Host medium:	crystalline rock (other)
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Phase Name	Start Year	End Year	Estimate
planning and/or concept assessment	1960	1960	False
site selection	1960	1962	False
design	1962	1962	False
construction	1962	1964	False
commissioning	1964	1964	False
operation	1964	1994	False
EVENT: operating license suspended	1994		False

Site (Structure) : Novi Han

Country: BULGARIA

Reporting Year: 2005

Facility:	SRS
Description:	Concrete vault for disposal of spent SRS.

Disposal part of facility SRS

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?	No
List UMMT?	No

Type:	engineered surface		
Facility is modular?	No		
Capacity existing (m3):	1	Capacity planned (m3):	1

Depth (m):	5.5	Host medium:	crystalline rock (other)
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Phase Name	Start Year	End Year	Estimate
planning and/or concept assessment	1960	1960	False
site selection	1960	1962	False
design	1962	1962	False
construction	1962	1964	False
commissioning	1964	1964	False
operation	1964	1994	False
EVENT: operating license suspended	1994		False

Site (Structure) : Novi Han

Country: BULGARIA

Reporting Year: 2005

Facility:	Stor2000
Description:	Storage units for acceptance of waste generated in nuclear applications, built after 2000

Storage part of facility Stor2000

The following shows storage 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

Capacity:	Current capacity according to operating license about 950 m3
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Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
JPK	container (ISO)	2000	No	No	Yes	Yes
PEK	not in list	2000	No	No	Yes	Yes
GOU	not in list	2001	No	No	Yes	Yes
KUB	not in list	2003	No	No	Yes	Yes
Lot 4	concrete pad	2000	No	No	No	No

Site (Structure) : Novi Han

Country: BULGARIA

Reporting Year: 2005

Facility:	WPF		
Description:	Waste Processing Facility		
Processing part of facility	WPF		
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:	1964		

Site (Data) : Novi Han

Stock of waste as at December 2005

Country: BULGARIA

Reporting Year: 2005

Site Name: Novi Han

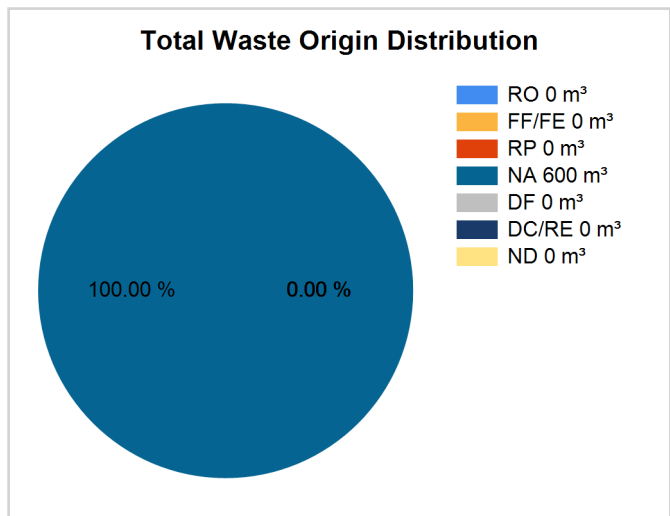
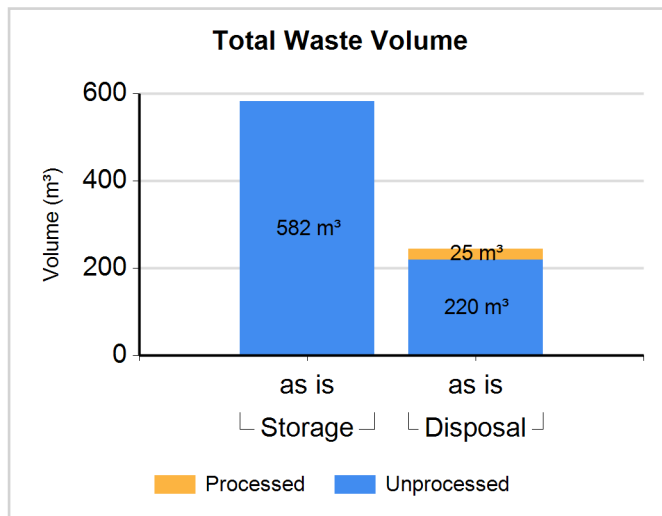
Full Name: Novi Han Repository

Inventory Reporting Date: December 2005

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: 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 / Liquid	N	N	12.000	12.000	0.00	0.00	0.00	100.00	0.00	0.00	0.00
LILW-SL	Storage / Stor2000	N	Y	250.000	250.000	0.00	0.00	0.00	100.00	0.00	0.00	0.00
LILW-SL	Disposal / Accidental	N	N	100.000	100.000	0.00	0.00	0.00	100.00	0.00	0.00	0.00
LILW-SL	Disposal / Biological	Y	N	25.000	25.000	0.00	0.00	0.00	100.00	0.00	0.00	0.00
LILW-SL	Disposal / Solid	N	N	120.000	120.000	0.00	0.00	0.00	100.00	0.00	0.00	0.00

Comment # 9919: Waste Storage facilities/Class LILW-SL/Site Novi H

Waste in "Liquid" is aqueous with very low activity below the release limits.

Reported waste amount in "Stor2000" is an (rough) estimate since the bulky waste represents less than one quarter of the total volume and the remaining part is spent sealed sources in different containers and devices. Main RNs - Cs-137 and Co-60.

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 / Stor2000	N	Y	320.000	320.000	0.00	0.00	0.00	100.00	0.00	0.00	0.00

Comment # 9918: Waste Storage facilities/Class LILW-LL/Site Novi H

Waste amount is an (rough) estimate since this waste consists mostly of sealed sources of low activity in their original hosting devices (smoke detectors, etc.), subject of future dismantling and segregation. Main RNs: Am-241 and Pu-239.

Site (Data) : Novi Han

Stock of waste as at December 2005

Country: BULGARIA

Reporting Year: 2005

Processing - Treatment method(s)

Method	Status			
	Planned	R&D program	Current practice method use over the last 5 years	Past Practice
Segregation/Sorting	N	N	Same	N
Wastewater Treatment	Y	N		N

Processing - Conditioning method(s)

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

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					
Ba-133	7			N	Y	N	3.720E-001	
	3.720E-001							
Cd-109	49			N	Y	N	2.550E+000	
	2.550E+000							
Ce-141	1			N	Y	N	4.000E-002	
	4.000E-002							
Ce-144	6			N	Y	N	8.850E-002	
	8.850E-002							
Cf-252	4			N	Y	Y	9.100E-002	
	9.100E-002							
Co-57	12			N	Y	Y	1.460E-003	
	1.460E-003							
Co-60		357		N	Y	Y	1.670E+003	
		1.670E+003						

Site (Data) : Novi Han

Stock of waste as at December 2005

Country: BULGARIA

Reporting Year: 2005

Co-60		36		N	Y	Y	6.270E+003	
		6.270E+003						
Cr-51	1			N	Y	N	4.000E-001	
	4.000E-001							
Cs-137	2962			N	Y	Y	3.420E+003	
	3.420E+003							
Eu-152	5			N	Y	N	1.000E-001	
	1.000E-001							
Fe-55	22			N	Y	Y	2.070E+001	
	2.070E+001							
H-3	21			N	Y	Y	3.920E-001	
	3.920E-001							
Kr-85	12271			N	Y	Y	4.710E+002	
	4.710E+002							
Na-22	16			N	Y	Y	6.540E-003	
	6.540E-003							
Pm-147	14			N	Y	Y	5.090E+001	
	5.090E+001							
Sr-90	741			N	Y	Y	1.560E+002	
	1.560E+002							
Tl-204	19			N	Y	N	2.000E+001	
	2.000E+001							

Site (Data) : Novi Han

Stock of waste as at December 2005

Country: BULGARIA

Reporting Year: 2005

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		34447	N	Y	Y	7.870E+004	
		7.870E+004					
Am-241		16	N	Y	Y	3.740E+001	
		3.740E+001					
C-14	104		N	Y	N	5.000E+000	
	5.000E+000						
Cl-36	4		N	Y	N	4.630E+000	
	4.630E+000						
Pu-238	1462		N	Y	N	4.000E+002	
	4.000E+002						
Pu-239	70437		N	Y	N	8.930E+002	
	8.930E+002						
Pu-239		71	N	Y	Y	1.850E+003	
		1.850E+003					
Ra-226		1	N	Y	Y	2.400E+000	
		2.400E+000					
Ra-226	219		N	Y	Y	5.590E+000	
	5.590E+000						
Th-232	14		N	Y	N	1.780E-001	
	1.780E-001						

Comment

7416: Neutron generators

Separately reported Am-241, Pu-239 and Ra-226 sources of lower number (16, 71 and 1) are in fact neutron generators (e.g. Am-241/Be).

Site (Structure) : KNPP

Country: BULGARIA

Reporting Year: 2005

Full Name: Kozloduy NPP

Location: North-western Bulgaria,
3.5 km south-east from the town of Kozloduy;Location: North-western Bulgaria,
3.5 km south-east from the town of Kozloduy;

Description:

Official Website:

License Holder(s): Kozloduy NPP Plc., 3321 Kozloduy, Bulgaria - for facilities: Units 1,2, Units 3,4, AB-1,
AB-2 and AB-3 / State Enterprise "Radioactive Waste", 51 James Baucher Blvd.,
1407 Sofia - for facilities: WMA-VS, WTCP and CWSFKozloduy NPP Plc., 3321 Kozloduy, Bulgaria - for facilities: Units 1,2, Units 3,4, AB-1,
AB-2 and AB-3 / State Enterprise "Radioactive Waste", 51 James Baucher Blvd.,
1407 Sofia - for facilities: WMA-VS, WTCP and CWSF

Waste management facilities that are located at this site:

Facility:	AB-1
Description:	Auxiliary Building, part of original design of Units 1 and 2. Processing of operational liquid waste and storage of solid waste, liquid waste and spent sorbents.

Site (Structure) : KNPP

Country: BULGARIA

Reporting Year: 2005

Storage part of facility AB-1

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
Solid-1	Yes	Yes
Solid-2	No	No
Solid-3	No	No
Liquid-1	No	No
Liquid-2	Yes	Yes
Liquid-3	No	No

List SRS?	No
List UMMT?	No

Capacity:	Solid waste - 7 bunkers with total capacity of 1010 m3 Liquid waste - 5 x 470 m3 High activity sorbents - 2 x 350 m3 Low activity sorbents - 2 x 188 m3
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Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
Solid 1-7	bunker	1974	No	No	No	No
Liquid-all	tank (stainless steel)	1974	No	No	No	No

Processing part of facility AB-1

The following shows processing status for waste classes and SRS.

Waste Class	Actual	Planned
Solid-1	No	No
Solid-2	No	No
Solid-3	No	No
Liquid-1	No	No
Liquid-2	No	No
Liquid-3	No	No

Type:	Treatment
Year opened:	1974

Site (Structure) : KNPP

Country: BULGARIA

Reporting Year: 2005

Comment **# 9923: Solid-1 and solid-2 classes**

No separation is made on site between solid-1 and solid-2 waste classes. Since major part of the waste is estimated to be solid-1 class, all wastes of these two classes is reported as solid-1. Same comment is valid for the following facilities: AB-2, AB-3, CWSF, WMA-VS.

Site (Structure) : KNPP

Country: BULGARIA

Reporting Year: 2005

Facility:	AB-2
Description:	Auxiliary Building, part of original design of Units 3 and 4. Processing of operational liquid waste and storage of solid waste, liquid waste and spent sorbents.

Storage part of facility AB-2

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
Solid-1	Yes	Yes
Solid-2	No	No
Solid-3	No	No
Liquid-1	No	No
Liquid-2	Yes	Yes
Liquid-3	No	No

List SRS?	No
List UMMT?	No

Capacity:	Solid waste - 7 bunkers with total capacity of 1010 m3 Liquid waste - 5 x 470 m3 High activity sorbents - 2 x 350 m3 Low activity sorbents - 2 x 188 m3
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Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
Solid 1-7	bunker	1980	No	No	No	No
Liquid-all	tank (stainless steel)	1980	No	No	No	No

Site (Structure) : KNPP

Country: BULGARIA

Reporting Year: 2005

Processing part of facility AB-2

The following shows processing status for waste classes and SRS.

Waste Class	Actual	Planned
Solid-1	No	No
Solid-2	No	No
Solid-3	No	No
Liquid-1	No	No
Liquid-2	No	No
Liquid-3	No	No

Type:	Treatment
Year opened:	1980

Site (Structure) : KNPP

Country: BULGARIA

Reporting Year: 2005

Facility:	AB-3
Description:	Auxiliary Building, part of original design of Units 5 and 6. Processing of operational liquid waste and storage of solid waste, liquid waste and spent sorbents.

Storage part of facility AB-3

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
Solid-1	Yes	Yes
Solid-2	No	No
Solid-3	Yes	Yes
Liquid-1	No	No
Liquid-2	Yes	Yes
Liquid-3	No	No

List SRS?	No
List UMMT?	No

Capacity:	Solid-1 and solid-2: 2486 m3 Solid-3: 213 m3 Liquid: 3600 m3 Spent sorbents: 2 x 100 m3
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Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
Solid	bunker	1987	No	No	No	No
Liquid	tank (stainless steel)	1987	No	No	No	No

Site (Structure) : KNPP

Country: BULGARIA

Reporting Year: 2005

Processing part of facility AB-3

The following shows processing status for waste classes and SRS.

Waste Class	Actual	Planned
Solid-1	No	No
Solid-2	No	No
Solid-3	No	No
Liquid-1	No	No
Liquid-2	No	No
Liquid-3	No	No

Type:	Treatment
Year opened:	1987

Site (Structure) : KNPP

Country: BULGARIA

Reporting Year: 2005

Facility:	CWSF
Description:	Storage facility for conditioned waste (from WTCP)

Storage part of facility CWSF

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
Solid-1	Yes	Yes
Solid-2	No	No
Solid-3	No	No
Liquid-1	No	No
Liquid-2	No	No
Liquid-3	No	No

List SRS?	No
List UMMT?	No

Capacity:	1920 containers with a total volume of 8 m3 each, including the container. Internal volume (capacity) of one container is 5 m3.
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Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
CWSF	building	2002	No	No	No	No

Site (Structure) : KNPP

Country: BULGARIA

Reporting Year: 2005

Facility:	Units 1, 2
Description:	Storage facility for class "solid-3" operational waste located in the reactor hall of units 1 and 2

Storage part of facility Units 1, 2

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
Solid-1	No	No
Solid-2	No	No
Solid-3	Yes	Yes
Liquid-1	No	No
Liquid-2	No	No
Liquid-3	No	No

List SRS?	No
List UMMT?	No

Capacity:	81.6 m3
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Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
Units 1, 2	silo	1974	No	No	No	No

Site (Structure) : KNPP

Country: BULGARIA

Reporting Year: 2005

Facility:	Units 3, 4
Description:	Storage facility for class "solid-3" operational waste located in the reactor hall of units 3 and 4

Storage part of facility Units 3, 4

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
Solid-1	No	No
Solid-2	No	No
Solid-3	Yes	Yes
Liquid-1	No	No
Liquid-2	No	No
Liquid-3	No	No

List SRS?	No
List UMMT?	No

Capacity:	81.6 m3
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Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
Units 3, 4	silos	1980	No	No	No	No

Site (Structure) : KNPP

Country: BULGARIA

Reporting Year: 2005

Facility:	WMA-VS
Description:	Waste Management Storage Area "Varovo Stopanstvo"

Storage part of facility WMA-VS

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
Solid-1	Yes	Yes
Solid-2	No	No
Solid-3	No	No
Liquid-1	No	No
Liquid-2	No	No
Liquid-3	No	No

List SRS?	No
List UMMT?	No

Capacity:	Total capacity: 11 929 m3.
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Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
VS	building	1992	No	Yes	No	No
GTK	container (marine)	1999	No	No	Yes	No
HRAO	bunker	1979	No	No	No	No
OP	concrete pad	1994	No	No	No	No

Site (Structure) : KNPP

Country: BULGARIA

Reporting Year: 2005

Facility:	WTCP		
Description:	Waste Processing Plant for treatment and conditioning of solid and liquid waste originating from Kozloduy NPP, located on site.		
Processing part of facility		WTCP	
The following shows processing status for waste classes and SRS.			
Waste Class	Actual	Planned	
Solid-1	No	No	
Solid-2	No	No	
Solid-3	No	No	
Liquid-1	No	No	
Liquid-2	No	No	
Liquid-3	No	No	
Type:	Treatment, Conditioning		
Year opened:	2001		

Site (Data) : KNPP

Stock of waste as at December 2005

Country: BULGARIA

Reporting Year: 2005

Site Name: KNPP

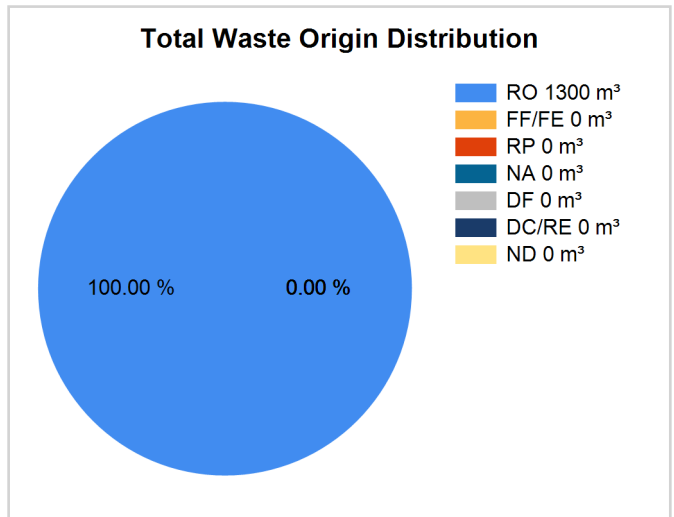
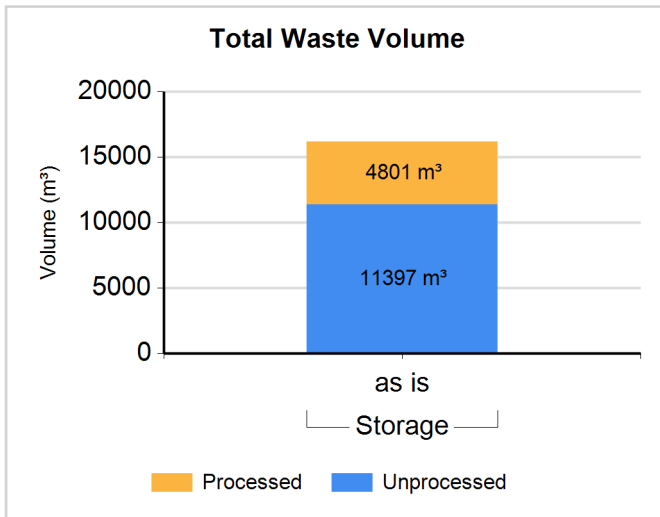
Full Name: Kozloduy NPP

Inventory Reporting Date: December 2005

Waste Matrix Used: 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.

Site (Data) : KNPP

Stock of waste as at December 2005

Country: BULGARIA

Reporting Year: 2005

Waste Class: Solid-1

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m ³)	Volume "as dispo" (m ³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
Solid-1	Storage / AB-1	N	N	534.000	534.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Solid-1	Storage / AB-2	N	N	100.000	100.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Solid-1	Storage / AB-2	Y	N	120.000	120.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Solid-1	Storage / AB-3	Y	N	1086.000	1086.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Solid-1	Storage / CWSF	Y	N	1840.000	1840.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Solid-1	Storage / WMA-VS	N	N	3148.000	3148.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Solid-1	Storage / WMA-VS	Y	N	1755.000	1755.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00

Waste Class: Solid-3

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m ³)	Volume "as dispo" (m ³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
Solid-3	Storage / AB-3	N	N	12.000	12.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Solid-3	Storage / Units 1, 2	N	N	53.000	53.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Solid-3	Storage / Units 3, 4	N	N	33.000	33.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00

Waste Class: Liquid-2

Waste Class Name	Location / Facility	Proc	Est.	Volume "as is" (m ³)	Volume "as dispo" (m ³)	RO %	FF/FE %	RP %	NA %	DF %	DC/RE %	ND %
Liquid-2	Storage / AB-1	N	N	2497.000	2497.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Liquid-2	Storage / AB-2	N	N	2202.000	2202.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00
Liquid-2	Storage / AB-3	N	N	2818.000	2818.000	100.00	0.00	0.00	0.00	0.00	0.00	0.00

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	Y	N		N
Evaporation	N	N	Same	N
Filtration	N	N	Same	N
Incineration	N	Y		N
Ion Exchange	N	N	Same	N
Shredding and Compaction	N	N	Same	N
Super Compaction	N	N	Same	N

Site (Data) : KNPP

Stock of waste as at December 2005

Country: BULGARIA

Reporting Year: 2005

Processing - Conditioning method(s)

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

Country: BULGARIA

Reporting Year: 2005

Name:	NRA
Full Name:	Nuclear Regulatory Agency
Divison:	
City or Town:	
Main Website:	

Comment **# 6525: Wastes that are regulated by the Regulator**

Matrix IAEA Def. - HLW, LILW-LL, LILW-SL; Matrix NPP - Liquid-1, Liquid-2, Liquid-3, Solid-1, Solid-2, Solid-3

Attachment **#824: Regulator**

2003_App_NRA1.doc

General description of NRA organization

Attachment **#825: Regulator**

2003_App_NRA2.doc

NRA organizational structure

Regulations / Laws

Country: BULGARIA

Reporting Year: 2005

Name:	ASUNE		
Title or Name:	Act on the Safe Use of Nuclear Energy		
Reference Number:			
Date Promulgated or Proclaimed:	6/28/2002	Law	

Comment **# 6526: Wastes that are regulated by the ASUNE**

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

Attachment **#826: Regulation**

Act_eng.pdf

Act on the Safe Use of Nuclear Energy - full text

Name:	RW Safety		
Title or Name:	Regulation for safe management of radioactive waste		
Reference Number:			
Date Promulgated or Proclaimed:	8/3/2004	Regulation	

Comment **# 6527: Wastes that are regulated by the Regulation**

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

Attachment **#992: Regulation**

Reg_RW_Engl.doc

Regulation for Safe Management of Radioactive Waste

Name:	SE "RW"		
Title or Name:	Regulation for the conditions and procedure for transfer of radioactive waste to the state enterprise "Radioactive Waste"		
Reference Number:	BNRP-2000		
Date Promulgated or Proclaimed:	7/14/2004	Regulation	

Comment **# 6529: Wastes that are regulated by the Regulation**

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

Comment **# 9701: Matters arranged by the Regulation SE**

The entities, which generate radioactive waste as a result of their activities, are obliged to transfer the waste to the State enterprise, which is responsible for the management of the radioactive waste after the deposit. The regulation defines the conditions and procedure for transferring the radioactive waste to the State enterprise "Radioactive Waste" and the terms for the transfer, as well as the radioactive waste not eligible for transfer. Specific procedures are defined for transferring radioactive waste generated from previous activities, radioactive waste with unknown owner, or which has been imported to the country and cannot be returned. The radioactive waste becomes state property at the moment of its transfer to the State enterprise.

Regulations / Laws

Country: BULGARIA

Reporting Year: 2005

Name:	NPP Safety		
Title or Name:	Regulation for providing the safety of nuclear power plants		
Reference Number:			
Date Promulgated or Proclaimed:	7/19/2004	Regulation	

Comment **# 6530: Matters arranged by the Regulation**

The regulation settles the matters related to the basic criteria and rules for the safety of nuclear power plants based on the concept of in-depth defense.

Subject to regulation are the organizational measures and technical requirements for providing of the safety during site selection, design, construction, commissioning and operation of nuclear power plants. The regulation contains detailed instructions related to the determination of the design basis and safety evaluations, the characteristics of the site and the safety requirements for the nuclear power plant and its systems.

The regulation is developed based on the IAEA safety standards and the reference levels for harmonization of the safety requirements for nuclear power plants, defined by the West European Nuclear Regulators' Association (WENRA).

Name:	SIR Safety		
Title or Name:	Regulation for radiation protection during activities with sources of ionizing radiation		
Reference Number:			
Date Promulgated or Proclaimed:	8/4/2004	Regulation	

Comment **# 9702: Matters arranged by the Regulation SIR Safety**

The regulation defines the basic requirements and rules for radiation protection during activities with sources of ionizing radiation and the condition and the procedure for accounting of the sources of ionizing radiation. The regulation puts in place requirements for radiation monitoring during activities with sources of ionizing radiation.

The regulation specifies technical and organizational rules for conforming to the established in Bulgaria basic norms for radiation protection.

Name:	Licensing		
Title or Name:	Regulation for the procedure for issuing licenses and permits for safe use of nuclear energy		
Reference Number:			
Date Promulgated or Proclaimed:	5/4/2004	Regulation	

Comment **# 6532: Wastes that are regulated by the Regulation**

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

Comment **# 9703: Matters arranged by the Regulation Licensing**

The regulation defines all matters related to the procedures for issuing, changing, renewing, canceling, revoking and controlling the licenses and permits demanded by the Safe Use of Nuclear Energy Act. The structure of the regulation takes into consideration the specifics of the types of nuclear facilities, activities and sites with sources of ionizing radiation. The scope and contents of the required documents is specified taking into account the necessary measures for providing the nuclear safety, radiation and physical protection. For activities with certain types of ionizing radiation sources, based on the lower risk for the population and the environment, alleviations of the required documents is provided.

Regulations / Laws

Country: BULGARIA

Reporting Year: 2005

Name:	Emergency	
Title or Name:	Regulation for emergency planning and emergency preparedness in case of nuclear and radiation accident	
Reference Number:		
Date Promulgated or Proclaimed:	7/30/2004	Regulation

Comment **# 6533: Matters arranged by the Regulation**

The regulation defines, in accordance to the provisions of the Safe Use Of Nuclear Energy Act, the conditions and procedure for developing emergency plans and the obligations of the persons who apply them. The actions and measures for limitation and liquidation of the consequences of nuclear or radiation accident are also defined as well as the criteria for decision taking for their activation and the methods for informing the population. Subject to definition is also the maintenance and control of the emergency preparedness and the interaction between the executive authorities and the licensees or holders of permits according to the Safe Use of Nuclear Energy Act.

Name:	BNRP	
Title or Name:	Regulation for the basic norms for radiation protection	
Reference Number:	Reg.10	
Date Promulgated or Proclaimed:	7/30/2004	Regulation

Comment **# 9704: Matters arranged by the Regulation BNRP**

The regulation reflects the requirements of the 96/29/EURATOM Directive, setting the basic standards for protecting the health of personnel and population from the damaging influence of ionizing radiation. The basic principles of radiation protection are developed, and the dose limits for personnel and population are set. In accordance with the provisions of the Directive, the concept for releasing from control of radioactive substances due to permitted activities, and the concept for limitation of irradiation are introduced. The Regulation sets requirements for monitoring of the working quarters, and the individual irradiation, as well as for the registration of the results of this monitoring. The requirements of Directive 90/641/EURATOM for operational protection of outside workers from the damaging influence of ionizing radiation during their activities in the controlled areas are introduced. In relation to the engagements of the Bulgarian side in the negotiations with the European Union, the Regulation introduces the basic principles and requirements for radiation protection from medical irradiation, taking into consideration Directive 84/466/EURATOM for health protection from the damaging influence of ionizing radiation from medical irradiation.

Name:	Security	
Title or Name:	Regulation for the provision of physical protection of nuclear facilities, nuclear material and radioactive substances	
Reference Number:		
Date Promulgated or Proclaimed:	8/25/2004	Regulation

Comment **# 9706: Matters arranged by the Regulation Security**

In the Regulation, according to the Safe use of nuclear energy Act and the convention for physical protection of nuclear material, the matters related to physical protection of nuclear facilities, and during use, storage and transportation of nuclear materials and radioactive substances are defined. The provisions of the Regulation take into consideration the specifics of the different kinds of nuclear facilities, nuclear materials and radioactive substances, which demand different levels of physical protection, depending on the category of nuclear materials and radioactive substances and the degree of risk.

Regulations / Laws

Country: BULGARIA

Reporting Year: 2005

Name:	Funding		
Title or Name:	Regulation for the procedure for assessment, collection, spending and control of the financial resources and definition of the amount of contributions due on the "Radioactive waste" Fund		
Reference Number:			
Date Promulgated or Proclaimed:	12/17/2003	Regulation	

Comment **# 9707: Matters arranged by the Regulation Funding**

The regulation determines the procedure for assessment, collection, spending and control of the financial resources and definition of the amount of contributions due on the "Radioactive waste" Fund under auspices of the Minister of Energy and Energy Resources. The Fund is managed in a manner to assure implementation of the activities for radioactive waste management. The revenues of the Fund are collected mainly from contributions from legal and physical entities, which generate radioactive waste, due for transfer to the state enterprise "Radioactive waste", as a result of their activities as well as from national budget resources, allocated annually pursuant to the National Budget Act for the relevant year.

Name:	Notifictn		
Title or Name:	Regulation of the conditions and procedure for notification of the NRA about events in nuclear facilities and sites with sources of ionizing radiation		
Reference Number:			
Date Promulgated or Proclaimed:	7/30/2004	Regulation	

Comment **# 9708: Matters arranged by the Regulation Notifictn**

The regulation defines the obligations of the licensee or the holder of a permit for creation of a system for collecting, registration, investigation, analysis and evaluation of events and determination of corrective measures. Also defined are the requirements for usage of the information about events, including for analysis of the operational experience, determining of the importance of the events for safety, as well as the procedure and terms for providing information to the citizens for events of different importance.

Milestones

Country: BULGARIA

Reporting Year: 2005

Start Year or Reference Year:	2005	End Year:	
Description of Milestone:			
Operating license issued for the waste management facility on Kozloduy site. Licensee - State Enterprise "Radioactive Waste" (SERAW).			
Start Year or Reference Year:	2004	End Year:	
Description of Milestone:			
Adoption of governmental Strategy for management of spent fuel and radioactive waste			
Start Year or Reference Year:	2004	End Year:	
Description of Milestone:			
Establishment and start of operations of the State Enterprise "Radioactive Waste" responsible for the off-site management of radioactive waste at national level.			
Start Year or Reference Year:	2003	End Year:	2005
Description of Milestone:			
Test operation of waste processing plant on Kozloduy NPP site			
Start Year or Reference Year:	2002	End Year:	
Description of Milestone:			
Final shut-down of Units 1 and 2 of Kozloduy NPP for decommissioning			
Start Year or Reference Year:	2002	End Year:	2003
Description of Milestone:			
Implementation of commissioning programme of waste processing plant on Kozloduy NPP site			
Start Year or Reference Year:	1999	End Year:	
Description of Milestone:			
Future investigations for disposal site selection for LILW from Kozloduy NPP operation finalized. One site recommended as most perspective			
Start Year or Reference Year:	1997	End Year:	
Description of Milestone:			
Program for upgrading the Novi Han repository started, financed by the operator, the regulator and the state budget, with the support of IAEA TC Project BUL/4/005 "Increasing Safety of Novi Han Repository"			

Milestones

Country: BULGARIA

Reporting Year: 2005

Start Year or Reference Year:	1996	End Year:	1997
Description of Milestone:			
Implementation of big international project "Radioactive waste management in Bulgaria"			
Start Year or Reference Year:	1994	End Year:	
Description of Milestone:			
Operation of Novi Han repository suspended by the regulator with prescription for improvements			
Start Year or Reference Year:	1991	End Year:	1994
Description of Milestone:			
Research for selection of perspective sites for disposal of radioactive waste conducted. As a result 7 sites are determined and criteria for final site selection elaborated. Results are compiled in "Conception for National Repository for Radioactive Waste"			
Start Year or Reference Year:	1974	End Year:	
Description of Milestone:			
Commissioning of Kozloduy NPP unit 1 (VVER-440, model 230), followed by unit 2 (VVER-440/230) in 1975, unit 3 (VVER-440/230) in 1980, unit 4 (VVER-440/230) in 1982, unit 5 (VVER-1000/320) in 1987 and unit 6 (VVER-1000/320) in 1989			
Start Year or Reference Year:	1964	End Year:	
Description of Milestone:			
Commissioning of Novi Han repository for LILW from the operation of IRRT-2000 research reactor and from the isotope applications			
Start Year or Reference Year:	1961	End Year:	
Description of Milestone:			
Commissioning of IRRT-2000 research reactor, located in Sofia and operated by the Bulgarian Academy of Science			

Future Outlook

Country: BULGARIA

Reporting Year: 2005

Data not available.

Future Outlook

Country: BULGARIA

Reporting Year: 2005

Data not available.

Future Outlook

Country: BULGARIA

Reporting Year: 2005

Data not available.

Future Outlook

Country: BULGARIA

Reporting Year: 2005

Data not available.

Future Outlook

Country: BULGARIA

Reporting Year: 2005

Data not available.

Future Outlook

Country: BULGARIA

Reporting Year: 2005

Data not available.

Future Outlook

Country: BULGARIA

Reporting Year: 2005

Data not available.

Future Outlook

Country: BULGARIA

Reporting Year: 2005

Data not available.