



**Country Waste Profile Report for
NORWAY
Reporting Year: 2007**

*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: NORWAY

Reporting Year: 2007

Waste Class Matrix: **IAEA Def.**

This country does use the IAEA Scheme: No

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

Waste Class Matrix: **NOR Def.**

Description:

Waste Class Name	Distribution %		
	LILW-SL	LILW-LL	HLW
LLW	90.0	10.0	0.0
ILW	85.0	15.0	0.0

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

Is not defined

Groups Overview

Country: NORWAY

Reporting Year: 2007

Reporting Group:	IFE			
Inventory Reporting Date:	December 2007			
Waste Matrix Used:	NOR Def.			
Description:	Institute for Energy Technology. Responsible for the waste handling and treatment plant. (It is only this plant for radioactive waste in Norway). Operator of the combined disposal and storage facility for LILW in Himdalen.			
Site Name	Facility Name	Facilities Defined		
Himdalen	Himdalen		storage	disposal
Kjeller	Lager 1		storage	
	Lager 2		storage	
	Radavfall	processing	storage	
	SLB			disposal

Site (Structure) : Himdalen

Country: NORWAY

Reporting Year: 2007

Full Name: Combined disposal and storage facility for LILW

Description:

Official Website:

License Holder(s): Construction and owner: Statsbygg

Operation: Institute for Energy Technology (IFE) / Institute for Energy Technology
Construction and owner: Statsbygg

Operation: Institute for Energy Technology (IFE) / Institute for Energy Technology

Waste management facilities that are located at this site:

Facility:	Himdalen
Description:	Combined disposal and storage facility

Storage part of facility Himdalen

The following shows storage status for waste classes and SRS.

Waste Class	Actual	Planned
LLW	Yes	Yes
ILW	No	No

List SRS?	No
List UMMT?	No

Capacity:	This is the storage part (one hall) in the Combined facility. The principle storage capacity is 525 m3 but at the moment only 35 m3 of specific waste packages are approved for storage.
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Types of Storage Units

Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
Storage-H	cave	1999	No	No	No	No

Site (Structure) : Himdalen

Country: NORWAY

Reporting Year: 2007

Disposal part of facility **Himdalen**

The following shows disposal status for waste classes and SRS.

Waste Class	Actual	Planned
LLW	Yes	Yes
ILW	Yes	Yes

List SRS?	No
List UMMT?	No

Type:	rock cavern (mountain/hill)		
Facility is modular?	No		
Capacity existing (m3):	1575	Capacity planned (m3):	1575

Depth (m):	50 m	Host medium:	crystalline rock (basalt)
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Phase Name	Start Year	End Year	Estimate
planning and/or concept assessment	1989	1992	False
site selection		1994	False
design	1994	1997	False
construction	1997	1998	False
commissioning	1998	1999	False
operation	1999		False
closure	2030		False
institutional control		2330	False

Site (Data) : Himdalen

Stock of waste as at December 2007

Country: NORWAY

Reporting Year: 2007

Site Name: Himdalen

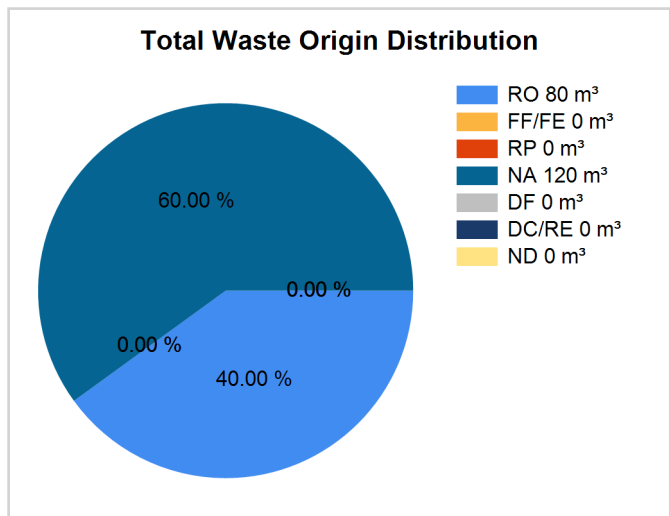
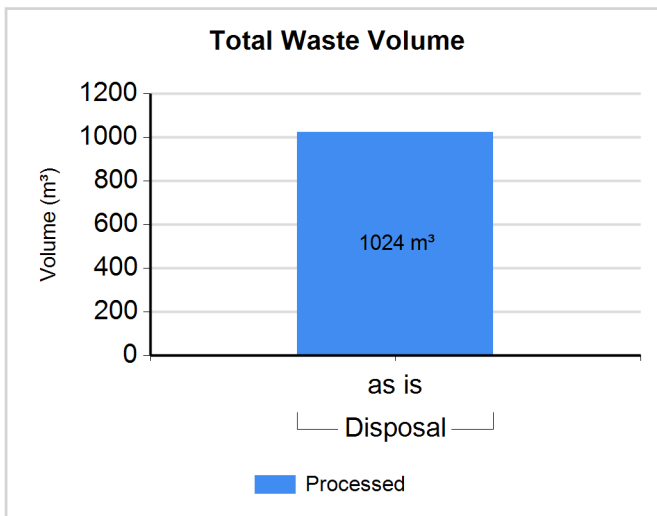
Full Name: Combined disposal and storage facility for LILW

Inventory Reporting Date: December 2007

Waste Matrix Used: NOR 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	Y	Y	341.000	341.000	40.00	0.00	0.00	60.00	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	Disposal	Y	Y	683.000	683.000	40.00	0.00	0.00	60.00	0.00	0.00	0.00

Site (Structure) : Kjeller

Country: NORWAY

Reporting Year: 2007

Full Name: Institute for Energy Technology
Waste treatment plant
Storage facilities

Description:

Official Website:

License Holder(s): Institute for Energy Technology (IFE)

Waste management facilities that are located at this site:

Facility:	Lager 1					
Description:	Storage facility 1. For storing solid, conditioned waste					
Storage part of facility Lager 1						
The following shows storage status for waste classes and SRS.						
Waste Class	Actual	Planned				
LLW	Yes	Yes				
ILW	Yes	Yes				
List SRS?	No					
List UMMT?	No					
Capacity:						
Types of Storage Units						
Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
Lager 1	building	1960	No	No	No	No

Site (Structure) : Kjeller

Country: NORWAY

Reporting Year: 2007

Facility:	Lager 2					
Description:	Storage facility for solid, conditioned waste.					
Storage part of facility Lager 2						
The following shows storage status for waste classes and SRS.						
Waste Class	Actual	Planned				
LLW	Yes	Yes				
ILW	Yes	Yes				
List SRS?	No					
List UMMT?	No					
Capacity:						
Types of Storage Units						
Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
Lager 2	building	1975	No	No	No	No

Site (Structure) : Kjeller

Country: NORWAY

Reporting Year: 2007

Facility:	Radavfall					
Description:	Facility for sorting, treating, handling, conditioning of LILW and storing SRS					
Storage part of facility Radavfall						
The following shows storage status for waste classes and SRS.						
Waste Class	Actual	Planned				
LLW	Yes	Yes				
ILW	Yes	Yes				
List SRS?	Yes					
List UMMT?	No					
Capacity:						
Types of Storage Units						
Storage Unit Name	Type Name	Year Opened	Closed?	Full?	Modular?	Contains SRS?
SRS	silos	1960	No	No	No	Yes
Processing part of facility Radavfall						
The following shows processing status for waste classes and SRS.						
Waste Class	Actual	Planned				
LLW	Yes	Yes				
ILW	Yes	Yes				
Type:	Treatment, Conditioning					
Year opened:	1960					

Site (Structure) : Kjeller

Country: NORWAY

Reporting Year: 2007

Facility:	SLB
Description:	A former Shallow Land Burial: 1000 drums was buried in 2 layers and covered by 2m of clay. Waste has been retrieved and moved to Himdalen facility

Disposal part of facility SLB

The following shows disposal status for waste classes and SRS.

Waste Class	Actual	Planned
LLW	No	No
ILW	No	No

List SRS?	No
List UMMT?	No

Type:	trench(es)
Facility is modular?	No

Depth (m):		Host medium:	sedimentary rock (consolidated clay)
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Phase Name	Start Year	End Year	Estimate
planning and/or concept assessment	1969		False
site selection		1970	False
commissioning	1970		False
operation	1970	2001	False
ACTIVITY: decommissioning	2001	2002	False

Site (Data) : Kjeller

Stock of waste as at December 2007

Country: NORWAY

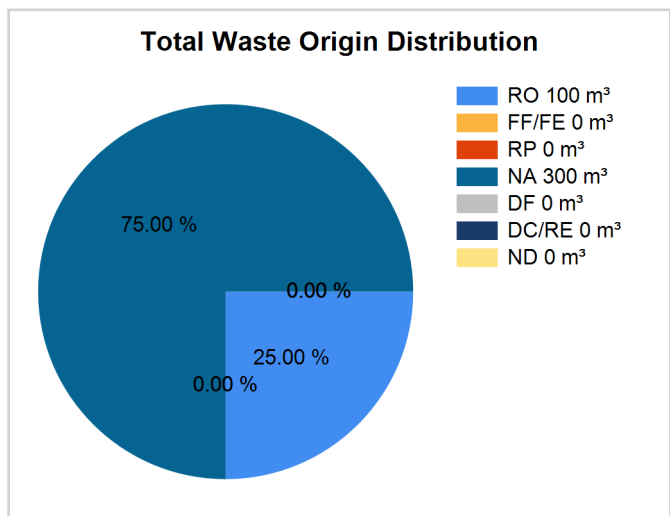
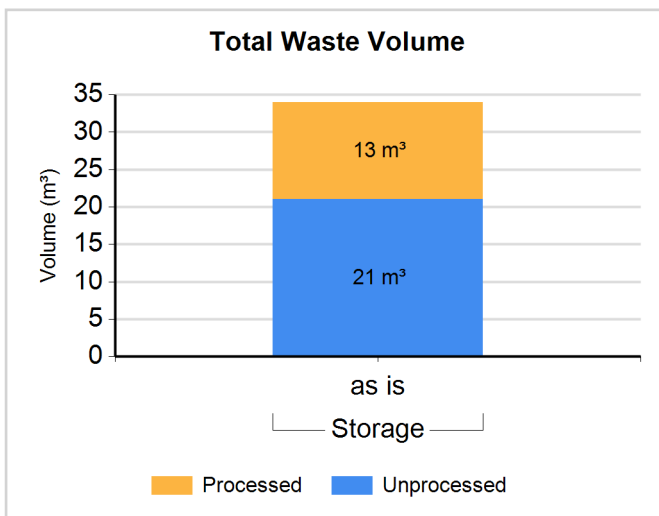
Reporting Year: 2007

Site Name: Kjeller

Full Name: Institute for Energy Technology
Waste treatment plant
Storage facilities

Inventory Reporting Date: December 2007**Waste Matrix Used:** NOR 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	16.000	16.000	10.00	0.00	0.00	90.00	0.00	0.00	0.00
LLW	Storage	Y	Y	5.000	5.000	10.00	0.00	0.00	90.00	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	5.000	5.000	40.00	0.00	0.00	60.00	0.00	0.00	0.00
ILW	Storage	Y	Y	8.000	8.000	40.00	0.00	0.00	60.00	0.00	0.00	0.00

Site (Data) : Kjeller

Stock of waste as at December 2007

Country: NORWAY

Reporting Year: 2007

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	Decrease	N
Evaporation	N	N	Same	N
Incineration	N	N	Suspended	N
Ion Exchange	N	N	Same	N
Shredding and Compaction	N	N	Increase	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
Solidification	N	N	Same	N

Regulators

Country: NORWAY

Reporting Year: 2007

Name:	NRPA
Full Name:	Norwegian Radiation Protection Authority P.O. Box 55 NO- 1332 Østerås, Norway
Divison:	Department for Radiation Protection and Nuclear Safety
City or Town:	Østerås
Main Website:	

Regulations / Laws

Country: NORWAY

Reporting Year: 2007

Name:	ANAAct		
Title or Name:	Lov om atomenergivirksomhet "Act on Atomic Nuclear Activities"		
Reference Number:	28		
Date Promulgated or Proclaimed:	5/12/1972	Law	

Comment **# 212: Other laws**

Concerning the construction of a facility or a repository also other laws are in force.
For ex. Environmental Impact Assessments and Impact assessments are regulated in the "Building Act".

Name:	RPact		
Title or Name:	Om strålevern og bruk av stråling. "Act on radiation protection and use of radiation"		
Reference Number:	no 36 (I-00 34/B)		
Date Promulgated or Proclaimed:	5/12/2000	Law	

Comment **# 5325: Wastes that are regulated by the Law**

Matrix NOR Def. - ILW, LLW
Also NORM, TENORM

Name:	RPreg.		
Title or Name:	Forskrift om strålevern og bruk av stråling. Regulation concerning radiation protection and the use of radiation.		
Reference Number:	1362		
Date Promulgated or Proclaimed:	11/21/2003	Regulation	

Comment **# 7298: Guidelines**

The Regulation covers all aspects of the use of radiation, in industry and medicine. Also non ionising radiation is covered.

Radioactive waste and discharges are covered in Chapter V in paragraphs 23,24,25.

NRPA is now in the process of producing guidelines for specific users (groups) in how to apply the regulation.

Permits etc will be given by NRPA after applications.

Name:	PPReg		
Title or Name:	Regulations on the Physical Protection of Nuclear Material Regulation pursuant to the ANA Act.		
Reference Number:			
Date Promulgated or Proclaimed:	11/2/1984	Regulation	

Regulations / Laws

Country: NORWAY

Reporting Year: 2007

Name:	ExReg		
Title or Name:	Regulations on exemption from the Act on Atomic Energy Activities for small amounts of nuclear material. Pursuant to the ANA Act		
Reference Number:			
Date Promulgated or Proclaimed:	11/15/1985	Regulation	

Name:	HMSReg		
Title or Name:	Regulations relating to Systematic Health, Environmental and Safety Activities in Enterproces. Pursuant to the RP Act (and also other Acts in Norway)		
Reference Number:			
Date Promulgated or Proclaimed:	12/6/1996	Regulation	

Milestones

Country: NORWAY

Reporting Year: 2007

Start Year or Reference Year:	2001	End Year:	
Description of Milestone:			
Retrieval of the shallow land disposal facility at the IFE Kjeller site. All drums retrieved, repacked, stored.			
Start Year or Reference Year:	1999	End Year:	1999
Description of Milestone:			
March 1999: The first transport of waste containers to the Himdalen repository from the IFE Kjeller plant.			
Start Year or Reference Year:	1999	End Year:	2004
Description of Milestone:			
Transfer of the waste packages from the storage facilities at IFE Kjeller to the Himdalen facility performed and completed. The 166 drums, containing some Pu, retrieved from the former shallow land disposal are now placed in the storage part of the Himdalen facility, awaiting further (final) decision.			
Start Year or Reference Year:	1995	End Year:	1995
Description of Milestone:			
December 1995: NRPA request to IAEA for a WATRP review about the Himdalen site/facility.			
Start Year or Reference Year:	1994	End Year:	1994
Description of Milestone:			
April 1994: Parliamentary decision; "Continue with site investigations at the Himdalen site for the construction of a Combined disposal and storage facility for LILW in Norway".			
Start Year or Reference Year:	1989	End Year:	1998
Description of Milestone:			
1989-1998 Process of establishing a disposal for the LILW in Norway.			

Policies

Country: NORWAY

Reporting Year: 2007

National Systems

Policy		(Yes;Partially;No)
Q14	Has your Country implemented a national policy for radioactive waste management?	Partially
<p>Comment # 7300: Long lived waste</p> <p>Discussions have started to find a solution for the SNF, long lived waste and other wastes that cannot be disposed of in Himdalen.</p> <p>A (new) centralised storage facility is under evaluation.</p> <p>The Norwegian authorities are at present considering the overall future radioactive waste and spent fuel management policy. Important aspects are future needs for new nuclear facilities (i.e storage and disposal capacities), optimal use of existing facilities,organisational structures, financing and public confidence.</p>		
Strategies		(Yes;Partially;No)
Q15	Has your country developed strategies to implement a national policy?	Partially
<p>Comment # 7301: Strategy</p> <p>The discussions have started to find a policy and strategy that will cover all waste arisings and to have an optimised system. Return (reexport) of Spent SRS will be an important part of the discussion and will have an impact on the inventories of waste in Norway.</p>		
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	Partially
Q19	implemented a mechanism to identify existing and anticipated radioactive wastes	Partially
Q20	implemented controls over radioactive waste generation	Partially
Q21	identified available methods and facilities to process, store and dispose of radioactive waste on an appropriate time-scale	Partially
Q22	taken into account interdependencies among all steps in radioactive waste generation and management	Partially
Q23	implemented appropriate research and development to support the operational and regulatory needs	Partially
Q24	implemented a funding structure and the allocation of resources that are essential for radioactive waste management	Partially
Q25	implemented formal mechanisms for disseminating information to the public and for public consultation	Yes

Policies

Country: NORWAY

Reporting Year: 2007

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	Incomplete
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	Incomplete
Q114	comply with legal requirements	Complete
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"?	No
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: NORWAY

Reporting Year: 2007

Disposal Facilities

Licensing		(Yes - All;Yes - Some;No)
Q53	Environmental Assessment (EA)	Yes - Some
Q54	Environmental Impact Statement (EIS)	Yes - Some
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

Comment # 213: Environmental Assessment

An Impact Assessment (covering more issues than the environment) is required by law before the construction of a nuclear facility. The IA is carried out before the licensing process starts. The IA for the Himdalen disposal facility was performed in connection with the site selection process (the IA covered three possible sites).

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

Comment # 215: Waste acceptance criteria

Waste acceptance criteria are not defined in any legal documents. Specific criteria will be established for any new facilities.

For the Himdalen disposal facility the planned/expected waste was described in the safety report (conditioning methods, amount, activity etc). This has now been approved and the waste can be disposed of. Any waste not described in the Safety report, the operator has to apply to NRPA for each package on a case-by-case.

All "old and existing" wastes have now been disposed of in the Himdalen facility, and specific waste acceptance criteria could be developed for future wastes.

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

Comment # 9895: Policies Disposal Facilities-Post-Closure

For the Himdalen disposal facility (LILW) it has been decided that an institutional control period of 300-500 years with monitoring and land use restrictions will apply. The facility is planned to be in operation until 2030 and at that time formal procedures and documentation for record keeping and institutional control will be established.

Policies

Country: NORWAY

Reporting Year: 2007

Processing/Storage

Policies/Procedures		(Yes;No)
Q73	waste sorting/segregation	No
Q74	waste minimization	No
Q75	waste storage	No
Q76	processing and/or storing and/or disposing of nuclear fuel cycle waste separately from non-nuclear fuel cycle waste (also known as nuclear applications waste)	No
Q78	Does your country have any legislation, regulation, or policy that waste processing must take place prior to storage (see following note)	No
Implementation		(Yes;No)
Q80	In your Country are there any waste processing facilities at the same location where the waste is generated?	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)?	Yes
Q122	Will some or all of the product(s) of processing/reprocessing be returned to your country?	No
Q123	Currently, are any of your country's wastes (processed or unprocessed, including the products of reprocessing) or spent fuel being stored in another country?	No
Q124	Has your country accepted any wastes or spent fuel from another country for processing (reprocessing for fuel)?	No

Comment **# 9896: Policies Processing/Storage-Foreign**

In 1969 spent fuel from The Halden Boiling Heavy Water reactor was reprocessed in Belgium. This is the only Norwegian spent fuel that has been reprocessed abroad. The plutonium and uranium gained from the reprocessing was sold for civilian use and the radioactive waste remained in Belgium.

Policies

Country: NORWAY

Reporting Year: 2007

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

Comment # 297: Registres

Each user /license holder is required to have a register of their sources.
Resources are now being put into developing an electronic web-based central register (at NRPA) for radioactive sources.

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?	Yes
Q101	Does your Country plan to dispose of spent SRS in existing or planned disposal facilities for LILW or HLW waste?	Yes
Q102	Has your Country implemented dedicated disposal facilities for spent SRS?	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: NORWAY

Reporting Year: 2007

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? No

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? No

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

Future Outlook

Country: NORWAY

Reporting Year: 2007

Data not available.

Future Outlook

Country: NORWAY

Reporting Year: 2007

Data not available.

Future Outlook

Country: NORWAY

Reporting Year: 2007

Data not available.

Future Outlook

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Data not available.

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